

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 1               | 1                      | I/O              | —           | C6                   | C5                     |
| 1               | 2                      | I/O              | —           | B5                   | D5                     |
| —               | 3                      | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 4                      | GNDINT           | GND         | GND                  | GND                    |
| 1               | 5                      | I/O              | —           | A5                   | E4                     |
| 1               | 6                      | I/O              | —           | B4                   | E5                     |
| 1               | 7                      | I/O              | —           | A4                   | E6                     |
| —               | 8                      | VCCIO            | VCCIO1      | VCCIO1               | VCCIO1                 |
| —               | 9                      | VCCIO            | VCCIO8      | VCCIO8               | VCCIO8                 |
| 8               | 10                     | I/O              | —           | —                    | F5                     |
| 8               | 11                     | I/O              | F6          | E5                   | F6                     |
| 8               | 12                     | I/O              | —           | —                    | G5                     |
| 8               | 13                     | I/O              | F5          | E3                   | G6                     |
| —               | 14                     | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 15                     | GNDINT           | GND         | GND                  | GND                    |
| 8               | 16                     | I/O              | —           | —                    | G7                     |
| 8               | 17                     | I/O              | —           | —                    | H4                     |
| 8               | 18                     | I/O              | F4          | F5                   | H5                     |
| 8               | 19                     | I/O              | —           | —                    | H6                     |
| 8               | 20                     | I/O              | C1          | F4                   | H7                     |
| —               | 21                     | GNDIO            | GND         | GND                  | GND                    |
| 8               | 22                     | I/O              | —           | —                    | J4                     |
| 8               | 23                     | I/O              | —           | —                    | J5                     |
| 8               | 24                     | I/O              | D1          | E4                   | J6                     |
| 8               | 25                     | I/O              | —           | —                    | J7                     |
| 8               | 26                     | I/O              | E2          | F3                   | J8                     |
| —               | 27                     | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 28                     | GNDINT           | GND         | GND                  | GND                    |
| 8               | 29                     | I/O              | —           | —                    | K4                     |
| 8               | 30                     | I/O              | —           | —                    | K5                     |
| 8               | 31                     | I/O              | G6          | D5                   | K6                     |
| 8               | 32                     | I/O              | —           | —                    | K7                     |
| 8               | 33                     | I/O              | G5          | G5                   | K8                     |
| —               | 34                     | VCCIO            | VCCIO8      | VCCIO8               | VCCIO8                 |
| 8               | 35                     | I/O              | —           | —                    | L5                     |
| 8               | 36                     | I/O              | —           | —                    | L6                     |
| 8               | 37                     | I/O              | G4          | G3                   | L7                     |
| 8               | 38                     | I/O              | —           | —                    | L8                     |
| 8               | 39                     | I/O              | G3          | G8                   | M5                     |
| —               | 40                     | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 41                     | GNDINT           | GND         | GND                  | GND                    |
| 8               | 42                     | I/O              | —           | —                    | M6                     |
| 8               | 43                     | I/O              | —           | —                    | M7                     |
| 8               | 44                     | I/O              | F2          | G4                   | M8                     |
| 8               | 45                     | I/O              | —           | —                    | M9                     |
| 8               | 46                     | I/O              | E1          | C4                   | M10                    |
| —               | 47                     | GNDIO            | GND         | GND                  | GND                    |
| 8               | 48                     | I/O              | —           | —                    | M11                    |

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|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 8               | 49                     | I/O              | —           | —                    | N4                     |
| 8               | 50                     | I/O              | G2          | G6                   | N5                     |
| 8               | 51                     | I/O              | —           | —                    | N6                     |
| 8               | 52                     | I/O              | H6          | H5                   | N7                     |
| —               | 53                     | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 54                     | GNDINT           | GND         | GND                  | GND                    |
| —               | 55                     | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 56                     | GNDINT           | GND         | GND                  | GND                    |
| 8               | 57                     | I/O              | H4          | G7                   | N8                     |
| 8               | 58                     | I/O              | H3          | H7                   | N9                     |
| 8               | 59                     | I/O              | F1          | H4                   | N10                    |
| 8               | 60                     | I/O              | H2          | H6                   | N11                    |
| 8               | 61                     | I/O              | G1          | K7                   | P4                     |
| —               | 62                     | VCCIO            | VCCIO8      | VCCIO8               | VCCIO8                 |
| 8               | 63                     | I/O              | J6          | J5                   | P5                     |
| 8               | 64                     | I/O              | J5          | H9                   | P6                     |
| 8               | 65                     | I/O              | J4          | J8                   | P7                     |
| 8               | 66                     | I/O              | J3          | H3                   | P8                     |
| 8               | 67                     | I/O              | J2          | K3                   | P10                    |
| —               | 68                     | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 69                     | GNDINT           | GND         | GND                  | GND                    |
| 8               | 70                     | I/O              | J1          | J4                   | P11                    |
| 8               | 71                     | I/O              | K6          | K5                   | R4                     |
| 8               | 72                     | I/O              | K5          | J6                   | R5                     |
| 8               | 73                     | I/O              | K4          | L6                   | R6                     |
| 8               | 74                     | I/O              | K3          | J7                   | R7                     |
| —               | 75                     | GNDIO            | GND         | GND                  | GND                    |
| 8               | 76                     | I/O              | K2          | J3                   | R8                     |
| 8               | 77                     | I/O              | K1          | K8                   | R10                    |
| 8               | 78                     | I/O, DATA6 (1)   | L6          | L8                   | A4                     |
| 8               | 79                     | I/O              | L5          | K6                   | R9                     |
| 8               | 80                     | I/O              | L4          | K4                   | R11                    |
| —               | 81                     | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 82                     | GNDINT           | GND         | GND                  | GND                    |
| 8               | 83                     | I/O              | L2          | N5                   | T4                     |
| 8               | 84                     | I/O              | L1          | M8                   | T5                     |
| 8               | 85                     | I/O, DATA7 (1)   | M6          | M10                  | B4                     |
| 8               | 86                     | I/O              | M5          | M6                   | T6                     |
| 8               | 87                     | I/O              | M4          | L7                   | T7                     |
| —               | 88                     | VCCIO            | VCCIO8      | VCCIO8               | VCCIO8                 |
| 8               | 89                     | I/O              | M3          | L9                   | T8                     |
| 8               | 90                     | I/O              | M2          | M7                   | T10                    |
| 8               | 91                     | I/O, nWS (1)     | M1          | P9                   | C4                     |
| 8               | 92                     | I/O              | N6          | L5                   | T11                    |
| 8               | 93                     | I/O              | N5          | P8                   | U4                     |
| —               | 94                     | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 95                     | GNDINT           | GND         | GND                  | GND                    |
| 8               | 96                     | I/O              | N3          | L4                   | U5                     |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function       | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------------|-------------|----------------------|------------------------|
| 8               | 97                     | I/O                    | N2          | L3                   | U6                     |
| 8               | 98                     | I/O, nRS (1)           | N1          | N10                  | D4                     |
| 8               | 99                     | I/O                    | P6          | R4                   | U7                     |
| 8               | 100                    | I/O                    | P5          | M5                   | U8                     |
| –               | 101                    | GNDIO                  | GND         | GND                  | GND                    |
| 8               | 102                    | I/O                    | P4          | M3                   | U9                     |
| 8               | 103                    | I/O                    | P3          | P4                   | U10                    |
| 8               | 104                    | I/O, nCS (1)           | P2          | M9                   | D3                     |
| 8               | 105                    | I/O                    | P1          | R3                   | U11                    |
| 8               | 106                    | I/O                    | R6          | P5                   | V4                     |
| –               | 107                    | VCCINT                 | VCCINT      | VCCINT               | VCCINT                 |
| –               | 108                    | GNDINT                 | GND         | GND                  | GND                    |
| –               | 109                    | VCC_CLKL4 (2)          | R4          | P10                  | P9                     |
| –               | 110                    | GND_CLKL4 (2)          | R3          | R10                  | T9                     |
| –               | 111                    | GND_CLKL4 (2)          | R3          | R10                  | T9                     |
| 8               | 112                    | I/O, CS (1)            | R2          | T6                   | E3                     |
| 8               | 113                    | I/O                    | R1          | M4                   | V5                     |
| 8               | 114                    | I/O, DEV_CLRn (3)      | T6          | R9                   | H3                     |
| –               | 115                    | VCCIO                  | VCCIO8      | VCCIO8               | VCCIO8                 |
| 8               | 116                    | I/O, CLKLK_FB2n (4)    | T5          | T8                   | J3                     |
| –               | 117                    | CLKLK_FB2p             | T4          | U8                   | K3                     |
| 8               | 118                    | I/O, CLK4n (4)         | T3          | R7                   | N3                     |
| –               | 119                    | CLK4p                  | T2          | R6                   | P3                     |
| 8               | 120                    | I/O, CLK2n (4)         | T1          | N9                   | R3                     |
| –               | 121                    | VCCINT                 | VCCINT      | VCCINT               | VCCINT                 |
| –               | 122                    | GNDINT                 | GND         | GND                  | GND                    |
| –               | 123                    | DATA0 (5), (6)         | U4          | N6                   | V3                     |
| –               | 124                    | DCLK (5)               | U3          | N7                   | W3                     |
| –               | 125                    | CLK2p                  | U2          | N8                   | Y3                     |
| –               | 126                    | NCE (5)                | U1          | P6                   | AC3                    |
| –               | 127                    | TDI (5)                | W1          | P7                   | AD3                    |
| –               | 128                    | GND_CLKL2 (2)          | W2          | P11                  | V9                     |
| –               | 129                    | GND_CLKL2 (2)          | W2          | P11                  | V9                     |
| –               | 130                    | GNDINT                 | GND         | GND                  | GND                    |
| –               | 131                    | VCCINT                 | VCCINT      | VCCINT               | VCCINT                 |
| –               | 132                    | VCC_CLKL2 (2)          | W4          | N11                  | Y9                     |
| 7               | 133                    | I/O, DEV_OE (3)        | Y5          | R8                   | AE3                    |
| –               | 134                    | VCC_CKOUT2 (7)         | Y1          | V7                   | AA9                    |
| –               | 135                    | GND_CKOUT2 (7)         | Y2          | V6                   | W9                     |
| –               | 136                    | CLKLK_OUT2p (8)        | Y3          | T7                   | AH3                    |
| 7               | 137                    | I/O, CLKLK_OUT2n (4)   | Y4          | U7                   | AJ3                    |
| –               | 138                    | GNDIO                  | GND         | GND                  | GND                    |
| 7               | 139                    | I/O, LVDSTXINCLK1p     | W5          | D1                   | AM5                    |
| 7               | 140                    | I/O, LVDSTXINCLK1n (4) | Y6          | D2                   | AL5                    |
| 7               | 141                    | I/O, LOCK2 (9)         | AB6         | U6                   | AK4                    |

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|-----------------|------------------------|-------------------------|-------------|----------------------|------------------------|
| 7               | 142                    | I/O, LVDSTXOUTCLK1n (4) | AA2         | E1                   | AM4                    |
| 7               | 143                    | I/O, LVDSTXOUTCLK1p     | AA3         | E2                   | AL4                    |
| –               | 144                    | GNDINT                  | GND         | GND                  | GND                    |
| –               | 145                    | VCCINT                  | VCCINT      | VCCINT               | VCCINT                 |
| 7               | 146                    | I/O, LVDSTX01p          | AA5         | F1                   | D1                     |
| 7               | 147                    | I/O, LVDSTX01n (4)      | AA6         | F2                   | D2                     |
| 7               | 148                    | I/O                     | AA1         | R5                   | V6                     |
| 7               | 149                    | I/O, LVDSTX02n (4)      | AB2         | G1                   | E1                     |
| 7               | 150                    | I/O, LVDSTX02p          | AB3         | G2                   | E2                     |
| –               | 151                    | VCCIO                   | VCCIO7      | VCCIO7               | VCCIO7                 |
| 7               | 152                    | I/O, LVDSTX03p          | AB4         | H1                   | H1                     |
| 7               | 153                    | I/O, LVDSTX03n (4)      | AB5         | H2                   | H2                     |
| 7               | 154                    | I/O                     | AB1         | T5                   | V7                     |
| 7               | 155                    | I/O, LVDSTX04n (4)      | AC1         | J1                   | J1                     |
| 7               | 156                    | I/O, LVDSTX04p          | AC2         | J2                   | J2                     |
| –               | 157                    | GNDINT                  | GND         | GND                  | GND                    |
| –               | 158                    | VCCINT                  | VCCINT      | VCCINT               | VCCINT                 |
| 7               | 159                    | I/O, LVDSTX05p          | AC4         | K1                   | K1                     |
| 7               | 160                    | I/O, LVDSTX05n (4)      | AC5         | K2                   | K2                     |
| 7               | 161                    | I/O, LOCK4 (9)          | AC6         | W7                   | AK5                    |
| 7               | 162                    | I/O, LVDSTX06n (4)      | AD1         | L1                   | N1                     |
| 7               | 163                    | I/O, LVDSTX06p          | AD2         | L2                   | N2                     |
| –               | 164                    | GNDIO                   | GND         | GND                  | GND                    |
| 7               | 165                    | I/O, LVDSTX07p          | AD3         | M1                   | P1                     |
| 7               | 166                    | I/O, LVDSTX07n (4)      | AD4         | M2                   | P2                     |
| 7               | 167                    | I/O                     | AD5         | T3                   | V8                     |
| 7               | 168                    | I/O, LVDSTX08n (4)      | AD6         | R1                   | R1                     |
| 7               | 169                    | I/O, LVDSTX08p          | AE1         | R2                   | R2                     |
| –               | 170                    | GNDINT                  | GND         | GND                  | GND                    |
| –               | 171                    | VCCINT                  | VCCINT      | VCCINT               | VCCINT                 |
| 7               | 172                    | I/O, LVDSTX09p          | AE3         | T1                   | V1                     |
| 7               | 173                    | I/O, LVDSTX09n (4)      | AE4         | T2                   | V2                     |
| 7               | 174                    | I/O                     | AE5         | U5                   | V10                    |
| 7               | 175                    | I/O, LVDSTX10n (4)      | AE6         | U1                   | W1                     |
| 7               | 176                    | I/O, LVDSTX10p          | AF1         | U2                   | W2                     |
| –               | 177                    | VCCIO                   | VCCIO7      | VCCIO7               | VCCIO7                 |
| 7               | 178                    | I/O, LVDSTX11p          | AF2         | V1                   | Y1                     |
| 7               | 179                    | I/O, LVDSTX11n (4)      | AF3         | V2                   | Y2                     |
| 7               | 180                    | I/O                     | AF4         | T4                   | V11                    |
| 7               | 181                    | I/O, LVDSTX12n (4)      | AF5         | W1                   | AC1                    |
| 7               | 182                    | I/O, LVDSTX12p          | AF6         | W2                   | AC2                    |
| –               | 183                    | GNDINT                  | GND         | GND                  | GND                    |
| –               | 184                    | VCCINT                  | VCCINT      | VCCINT               | VCCINT                 |
| 7               | 185                    | I/O, LVDSTX13p          | AH1         | Y1                   | AD1                    |
| 7               | 186                    | I/O, LVDSTX13n (4)      | AG2         | Y2                   | AD2                    |
| 7               | 187                    | I/O                     | AG3         | U4                   | W4                     |

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|-----------------|------------------------|--------------------|-------------|----------------------|------------------------|
| 7               | 188                    | I/O, LVDSTX14n (4) | AG4         | AA1                  | AE1                    |
| 7               | 189                    | I/O, LVDSTX14p     | AG5         | AA2                  | AE2                    |
| –               | 190                    | GNDIO              | GND         | GND                  | GND                    |
| 7               | 191                    | I/O, LVDSTX15p     | AG6         | AB1                  | AH1                    |
| 7               | 192                    | I/O, LVDSTX15n (4) | AJ1         | AB2                  | AH2                    |
| 7               | 193                    | I/O                | AH2         | W4                   | W5                     |
| 7               | 194                    | I/O, LVDSTX16n (4) | AK1         | AC1                  | AJ1                    |
| 7               | 195                    | I/O, LVDSTX16p     | AH3         | AC2                  | AJ2                    |
| –               | 196                    | GNDINT             | GND         | GND                  | GND                    |
| –               | 197                    | VCCINT             | VCCINT      | VCCINT               | VCCINT                 |
| –               | 198                    | GNDINT             | GND         | GND                  | GND                    |
| –               | 199                    | VCCINT             | VCCINT      | VCCINT               | VCCINT                 |
| 7               | 200                    | I/O                | AH5         | U3                   | W6                     |
| 7               | 201                    | I/O                | –           | –                    | W7                     |
| 7               | 202                    | I/O                | AH6         | V3                   | W8                     |
| 7               | 203                    | I/O                | –           | –                    | W10                    |
| 7               | 204                    | I/O                | –           | –                    | W11                    |
| –               | 205                    | VCCIO              | VCCIO7      | VCCIO7               | VCCIO7                 |
| 7               | 206                    | I/O                | AJ2         | W5                   | Y4                     |
| 7               | 207                    | I/O                | –           | –                    | Y5                     |
| 7               | 208                    | I/O                | AL1         | W6                   | Y6                     |
| 7               | 209                    | I/O                | –           | –                    | Y7                     |
| 7               | 210                    | I/O                | –           | –                    | Y8                     |
| –               | 211                    | GNDINT             | GND         | GND                  | GND                    |
| –               | 212                    | VCCINT             | VCCINT      | VCCINT               | VCCINT                 |
| 7               | 213                    | I/O                | AK2         | V5                   | Y10                    |
| 7               | 214                    | I/O                | –           | –                    | Y11                    |
| 7               | 215                    | I/O                | AJ3         | V4                   | AA5                    |
| 7               | 216                    | I/O                | –           | –                    | AA6                    |
| 7               | 217                    | I/O                | –           | –                    | AA7                    |
| –               | 218                    | GNDIO              | GND         | GND                  | GND                    |
| 7               | 219                    | I/O                | AJ4         | W3                   | AA8                    |
| 7               | 220                    | I/O                | –           | –                    | AA10                   |
| 7               | 221                    | I/O                | AJ5         | Y5                   | AA11                   |
| 7               | 222                    | I/O                | –           | –                    | AB5                    |
| 7               | 223                    | I/O                | –           | –                    | AB6                    |
| –               | 224                    | GNDINT             | GND         | GND                  | GND                    |
| –               | 225                    | VCCINT             | VCCINT      | VCCINT               | VCCINT                 |
| 7               | 226                    | I/O                | AJ6         | AB5                  | AB7                    |
| 7               | 227                    | I/O                | –           | –                    | AC4                    |
| 7               | 228                    | I/O                | AM1         | AA5                  | AC5                    |
| 7               | 229                    | I/O                | –           | –                    | AC6                    |
| 7               | 230                    | I/O                | –           | –                    | AC7                    |
| –               | 231                    | VCCIO              | VCCIO7      | VCCIO7               | VCCIO7                 |
| 7               | 232                    | I/O                | AK3         | Y6                   | AD4                    |
| 7               | 233                    | I/O                | –           | –                    | AD5                    |
| 7               | 234                    | I/O                | AK4         | AA6                  | AD6                    |
| 7               | 235                    | I/O                | –           | –                    | AD7                    |

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|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 7               | 236                    | I/O              | –           | –                    | AE4                    |
| –               | 237                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 238                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| 7               | 239                    | I/O              | AK5         | AA7                  | AE5                    |
| 7               | 240                    | I/O              | –           | –                    | AE6                    |
| 7               | 241                    | I/O              | AK6         | AB6                  | AE7                    |
| 7               | 242                    | I/O              | –           | –                    | AF5                    |
| –               | 243                    | GNDIO            | GND         | GND                  | GND                    |
| 6               | 244                    | I/O              | –           | AB4                  | AF6                    |
| 6               | 245                    | I/O              | –           | AA4                  | AG5                    |
| 6               | 246                    | I/O              | –           | AC5                  | AG6                    |
| –               | 247                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 248                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| 6               | 249                    | I/O              | –           | Y4                   | AH4                    |
| 6               | 250                    | I/O              | –           | AE4                  | AH5                    |
| 6               | 251                    | I/O              | AL7         | AB3                  | AJ4                    |
| 6               | 252                    | I/O              | –           | –                    | AJ5                    |
| 6               | 253                    | I/O              | AM6         | AF4                  | AH6                    |
| 6               | 254                    | I/O              | –           | –                    | AF7                    |
| 6               | 255                    | I/O              | AP3         | Y3                   | AG7                    |
| –               | 256                    | VCCIO            | VCCIO6      | VCCIO6               | VCCIO6                 |
| 6               | 257                    | I/O              | AN5         | AD4                  | AH7                    |
| 6               | 258                    | I/O              | AR2         | AA3                  | AB8                    |
| 6               | 259                    | I/O              | AP4         | AE5                  | AC8                    |
| 6               | 260                    | I/O              | AL8         | AD5                  | AD8                    |
| 6               | 261                    | I/O              | AM7         | AD6                  | AE8                    |
| 6               | 262                    | I/O              | –           | –                    | AF8                    |
| 6               | 263                    | I/O              | AN6         | AB7                  | AG8                    |
| 6               | 264                    | I/O              | –           | –                    | AH8                    |
| 6               | 265                    | I/O              | AR3         | Y7                   | AJ8                    |
| 6               | 266                    | I/O              | –           | –                    | AK8                    |
| –               | 267                    | GNDIO            | GND         | GND                  | GND                    |
| 6               | 268                    | I/O              | –           | –                    | AL8                    |
| 6               | 269                    | I/O              | AP5         | AC6                  | AM8                    |
| 6               | 270                    | I/O              | –           | –                    | AB9                    |
| 6               | 271                    | I/O              | AL9         | AB8                  | AC9                    |
| 6               | 272                    | I/O              | –           | –                    | AD9                    |
| 6               | 273                    | I/O              | AR4         | AF5                  | AE9                    |
| 6               | 274                    | I/O              | AM8         | V8                   | AF9                    |
| 6               | 275                    | I/O              | AN7         | AC7                  | AG9                    |
| 6               | 276                    | I/O              | AP6         | AD7                  | AH9                    |
| 6               | 277                    | I/O              | AR5         | T9                   | AJ9                    |
| –               | 278                    | VCCIO            | VCCIO6      | VCCIO6               | VCCIO6                 |
| 6               | 279                    | I/O              | AM9         | AE7                  | AK9                    |
| 6               | 280                    | I/O              | –           | –                    | AL9                    |
| 6               | 281                    | I/O              | AL10        | AA9                  | AM9                    |
| 6               | 282                    | I/O              | –           | –                    | AB10                   |
| 6               | 283                    | I/O              | AN8         | AF7                  | AC10                   |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 6               | 284                    | I/O              | –           | –                    | AD10                   |
| 6               | 285                    | I/O              | –           | –                    | AE10                   |
| 6               | 286                    | I/O              | AP7         | AA8                  | AF10                   |
| 6               | 287                    | I/O              | –           | –                    | AG10                   |
| 6               | 288                    | I/O              | AR6         | AC8                  | AH10                   |
| –               | 289                    | GNDIO            | GND         | GND                  | GND                    |
| 6               | 290                    | I/O              | –           | –                    | AJ10                   |
| 6               | 291                    | I/O              | AM10        | Y8                   | AK10                   |
| 6               | 292                    | I/O              | AN9         | AD8                  | AL10                   |
| 6               | 293                    | I/O              | AL11        | Y9                   | AB11                   |
| 6               | 294                    | I/O              | AP8         | W9                   | AC11                   |
| 6               | 295                    | I/O              | AR7         | AB9                  | AD11                   |
| 6               | 296                    | I/O              | AM11        | W10                  | AE11                   |
| 6               | 297                    | I/O              | –           | –                    | AF11                   |
| 6               | 298                    | I/O              | AN10        | AC9                  | AG11                   |
| 6               | 299                    | I/O              | –           | –                    | –                      |
| 6               | 300                    | I/O              | AP9         | Y10                  | AH11                   |
| –               | 301                    | VCCIO            | VCCIO6      | VCCIO6               | VCCIO6                 |
| –               | 302                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 303                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 304                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 305                    | GNDINT           | GND         | GND                  | GND                    |
| 6               | 306                    | I/O              | AR8         | AD9                  | AB12                   |
| 6               | 307                    | I/O              | –           | –                    | –                      |
| 6               | 308                    | I/O              | AN11        | AA10                 | AC12                   |
| 6               | 309                    | I/O              | –           | –                    | AD12                   |
| 6               | 310                    | I/O              | AP10        | AB11                 | AE12                   |
| 6               | 311                    | I/O              | AR9         | V11                  | AF12                   |
| 6               | 312                    | I/O              | AL13        | AB10                 | AG12                   |
| 6               | 313                    | I/O              | AM13        | AC10                 | AH12                   |
| 6               | 314                    | I/O              | AN12        | AA11                 | AB13                   |
| 6               | 315                    | I/O              | AP11        | AE9                  | AC13                   |
| 6               | 316                    | I/O              | –           | –                    | AD13                   |
| –               | 317                    | GNDIO            | GND         | GND                  | GND                    |
| 6               | 318                    | I/O              | AL14        | Y11                  | AE13                   |
| 6               | 319                    | I/O              | –           | –                    | AF13                   |
| 6               | 320                    | I/O              | AR10        | AF9                  | AG13                   |
| 6               | 321                    | I/O              | –           | –                    | AH13                   |
| 6               | 322                    | I/O              | –           | –                    | AJ13                   |
| 6               | 323                    | I/O              | AN13        | W11                  | AK13                   |
| 6               | 324                    | I/O              | –           | –                    | AL13                   |
| 6               | 325                    | I/O              | AP12        | AF11                 | AB14                   |
| 6               | 326                    | I/O              | –           | –                    | AC14                   |
| 6               | 327                    | I/O              | AM14        | V12                  | AD14                   |
| –               | 328                    | VCCIO            | VCCIO6      | VCCIO6               | VCCIO6                 |
| 6               | 329                    | I/O              | AR11        | AE10                 | AE14                   |
| 6               | 330                    | I/O              | AL15        | W12                  | AF14                   |
| 6               | 331                    | I/O              | AN14        | Y12                  | AG14                   |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 6               | 332                    | I/O              | AP13        | T13                  | AH14                   |
| 6               | 333                    | I/O              | AR12        | W14                  | AJ14                   |
| 6               | 334                    | I/O              | –           | –                    | AK14                   |
| 6               | 335                    | I/O              | AR13        | AB12                 | AL14                   |
| 6               | 336                    | I/O              | –           | –                    | AB15                   |
| 6               | 337                    | I/O              | AM15        | AF10                 | AC15                   |
| 6               | 338                    | I/O              | –           | –                    | AD15                   |
| –               | 339                    | GNDIO            | GND         | GND                  | GND                    |
| 6               | 340                    | I/O              | –           | –                    | AE15                   |
| 6               | 341                    | I/O              | AN15        | U13                  | AF15                   |
| 6               | 342                    | I/O              | –           | –                    | AG15                   |
| 6               | 343                    | I/O              | AL16        | W13                  | AH15                   |
| 6               | 344                    | I/O              | –           | –                    | AJ15                   |
| 6               | 345                    | I/O              | AP14        | AE11                 | AK15                   |
| 6               | 346                    | I/O              | AR14        | V13                  | AL15                   |
| 6               | 347                    | I/O              | AP15        | AD11                 | AB16                   |
| 6               | 348                    | I/O              | AR15        | AD12                 | AC16                   |
| 6               | 349                    | I/O, LVDSDESKEW  | AM16        | U12                  | AM10                   |
| –               | 350                    | VCCIO            | VCCIO6      | VCCIO6               | VCCIO6                 |
| 6               | 351                    | I/O              | AN16        | AE12                 | AD16                   |
| 6               | 352                    | I/O              | –           | –                    | AE16                   |
| 6               | 353                    | I/O              | AP16        | AF12                 | AF16                   |
| 6               | 354                    | I/O              | –           | –                    | AG16                   |
| 6               | 355                    | I/O              | AR16        | AE13                 | AH16                   |
| –               | 356                    | CONF_DONE (5)    | AM17        | AA12                 | AM13                   |
| –               | 357                    | NSTATUS (5)      | AN17        | AA13                 | AM14                   |
| 5               | 358                    | FAST4            | AP17        | Y13                  | AM15                   |
| –               | 359                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 360                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 361                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 362                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 363                    | GNDIO            | GND         | GND                  | GND                    |
| 5               | 364                    | FAST3            | AP19        | Y14                  | AM18                   |
| –               | 365                    | TCK (5)          | AN19        | AA14                 | AM19                   |
| –               | 366                    | TMS (5)          | AM19        | AA15                 | AM20                   |
| 5               | 367                    | I/O              | AR20        | AE14                 | AJ16                   |
| 5               | 368                    | I/O              | –           | –                    | AK16                   |
| 5               | 369                    | I/O              | AP20        | AD14                 | AK17                   |
| 5               | 370                    | I/O              | –           | –                    | AJ17                   |
| 5               | 371                    | I/O              | AN20        | AE15                 | AH17                   |
| –               | 372                    | VCCIO            | VCCIO5      | VCCIO5               | VCCIO5                 |
| 5               | 373                    | I/O              | AM20        | AD15                 | AG17                   |
| 5               | 374                    | I/O              | AR21        | AD16                 | AF17                   |
| 5               | 375                    | I/O              | AP21        | AC13                 | AE17                   |
| 5               | 376                    | I/O              | AR22        | AD17                 | AD17                   |
| 5               | 377                    | I/O              | AP22        | AC12                 | AC17                   |
| 5               | 378                    | I/O              | –           | –                    | AB17                   |
| 5               | 379                    | I/O              | AL20        | AC14                 | AL18                   |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 5               | 380                    | I/O              | –           | –                    | AK18                   |
| 5               | 381                    | I/O              | AN21        | AD10                 | AJ18                   |
| 5               | 382                    | I/O              | –           | –                    | AH18                   |
| –               | 383                    | GNDIO            | GND         | GND                  | GND                    |
| 5               | 384                    | I/O              | –           | –                    | AG18                   |
| 5               | 385                    | I/O              | AM21        | AB13                 | AF18                   |
| 5               | 386                    | I/O              | –           | –                    | AE18                   |
| 5               | 387                    | I/O              | AR23        | V14                  | AD18                   |
| 5               | 388                    | I/O              | –           | –                    | AC18                   |
| 5               | 389                    | I/O              | AR24        | AB14                 | AB18                   |
| 5               | 390                    | I/O              | AP23        | Y15                  | AL19                   |
| 5               | 391                    | I/O              | AN22        | AC11                 | AK19                   |
| 5               | 392                    | I/O              | AL21        | AD18                 | AJ19                   |
| 5               | 393                    | I/O              | AR25        | U14                  | AH19                   |
| –               | 394                    | VCCIO            | VCCIO5      | VCCIO5               | VCCIO5                 |
| 5               | 395                    | I/O              | AM22        | AC15                 | AG19                   |
| 5               | 396                    | I/O              | –           | –                    | AF19                   |
| 5               | 397                    | I/O              | AP24        | V15                  | AE19                   |
| 5               | 398                    | I/O              | –           | –                    | AD19                   |
| 5               | 399                    | I/O              | AN23        | AB15                 | AC19                   |
| 5               | 400                    | I/O              | –           | –                    | AB19                   |
| 5               | 401                    | I/O              | –           | –                    | AL20                   |
| 5               | 402                    | I/O              | AR26        | W15                  | AK20                   |
| 5               | 403                    | I/O              | –           | –                    | AJ20                   |
| 5               | 404                    | I/O              | AL22        | AB16                 | AH20                   |
| –               | 405                    | GNDIO            | GND         | GND                  | GND                    |
| 5               | 406                    | I/O              | –           | –                    | AG20                   |
| 5               | 407                    | I/O              | AP25        | T14                  | AF20                   |
| 5               | 408                    | I/O              | AN24        | AD19                 | AE20                   |
| 5               | 409                    | I/O              | AM23        | AA16                 | AD20                   |
| 5               | 410                    | I/O              | AL23        | Y16                  | AC20                   |
| 5               | 411                    | I/O              | AR27        | AC16                 | AB20                   |
| 5               | 412                    | I/O              | AP26        | W16                  | AH21                   |
| 5               | 413                    | I/O              | –           | –                    | AG21                   |
| 5               | 414                    | I/O              | AN25        | AC17                 | AF21                   |
| 5               | 415                    | I/O              | –           | –                    | –                      |
| 5               | 416                    | I/O              | AR28        | U15                  | AE21                   |
| –               | 417                    | VCCIO            | VCCIO5      | VCCIO5               | VCCIO5                 |
| –               | 418                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 419                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 420                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 421                    | GNDINT           | GND         | GND                  | GND                    |
| 5               | 422                    | I/O              | AP27        | AB17                 | AD21                   |
| 5               | 423                    | I/O              | –           | –                    | –                      |
| 5               | 424                    | I/O              | AN26        | V16                  | AC21                   |
| 5               | 425                    | I/O              | –           | –                    | AB21                   |
| 5               | 426                    | I/O              | AM25        | AE16                 | AH22                   |
| 5               | 427                    | I/O              | AR29        | AA17                 | AG22                   |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 5               | 428                    | I/O              | AP28        | AD20                 | AF22                   |
| 5               | 429                    | I/O              | AL25        | AB18                 | AE22                   |
| 5               | 430                    | I/O              | AN27        | Y17                  | AD22                   |
| 5               | 431                    | I/O              | AM26        | AF16                 | AC22                   |
| 5               | 432                    | I/O              | —           | —                    | AB22                   |
| —               | 433                    | GNDIO            | GND         | GND                  | GND                    |
| 5               | 434                    | I/O              | AR30        | AA18                 | AM23                   |
| 5               | 435                    | I/O              | —           | —                    | AL23                   |
| 5               | 436                    | I/O              | AP29        | AC18                 | AK23                   |
| 5               | 437                    | I/O              | —           | —                    | AJ23                   |
| 5               | 438                    | I/O              | —           | —                    | AH23                   |
| 5               | 439                    | I/O              | AN28        | W17                  | AG23                   |
| 5               | 440                    | I/O              | —           | —                    | AF23                   |
| 5               | 441                    | I/O              | AL26        | AE17                 | AE23                   |
| 5               | 442                    | I/O              | —           | —                    | AD23                   |
| 5               | 443                    | I/O              | AM27        | Y18                  | AC23                   |
| —               | 444                    | VCCIO            | VCCIO5      | VCCIO5               | VCCIO5                 |
| 5               | 445                    | I/O              | AR31        | AF17                 | AB23                   |
| 5               | 446                    | I/O              | AP30        | W18                  | AM24                   |
| 5               | 447                    | I/O              | AN29        | AA19                 | AL24                   |
| 5               | 448                    | I/O              | AM28        | AD21                 | AK24                   |
| 5               | 449                    | I/O              | AR32        | Y19                  | AJ24                   |
| 5               | 450                    | I/O              | —           | —                    | AH24                   |
| 5               | 451                    | I/O              | AL27        | AD22                 | AG24                   |
| 5               | 452                    | I/O              | —           | —                    | AF24                   |
| 5               | 453                    | I/O              | AP31        | W20                  | AE24                   |
| 5               | 454                    | I/O              | —           | —                    | AD24                   |
| —               | 455                    | GNDIO            | GND         | GND                  | GND                    |
| 5               | 456                    | I/O              | —           | —                    | AC24                   |
| 5               | 457                    | I/O              | AR33        | AC19                 | AB24                   |
| 5               | 458                    | I/O              | —           | —                    | AM25                   |
| 5               | 459                    | I/O              | AN30        | Y20                  | AL25                   |
| 5               | 460                    | I/O              | —           | —                    | AK25                   |
| 5               | 461                    | I/O              | AM29        | AB20                 | AJ25                   |
| 5               | 462                    | I/O              | AL28        | AB19                 | AH25                   |
| 5               | 463                    | I/O              | AP32        | AC20                 | AG25                   |
| 5               | 464                    | I/O              | AR34        | AD23                 | AF25                   |
| 5               | 465                    | I/O              | AN31        | AA20                 | AE25                   |
| —               | 466                    | VCCIO            | VCCIO5      | VCCIO5               | VCCIO5                 |
| 5               | 467                    | I/O              | AP33        | AB24                 | AD25                   |
| 5               | 468                    | I/O              | —           | —                    | AC25                   |
| 5               | 469                    | I/O              | AM30        | AC22                 | AB25                   |
| 5               | 470                    | I/O              | —           | —                    | AH26                   |
| 5               | 471                    | I/O              | AL29        | AC21                 | AG26                   |
| 5               | 472                    | I/O              | —           | Y23                  | AF26                   |
| 5               | 473                    | I/O              | —           | Y24                  | AH27                   |
| —               | 474                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 475                    | GNDINT           | GND         | GND                  | GND                    |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 5               | 476                    | I/O              | —           | AA23                 | AK28                   |
| 5               | 477                    | I/O              | —           | AA24                 | AK29                   |
| 5               | 478                    | I/O              | —           | AB23                 | AJ28                   |
| —               | 479                    | GNDIO            | GND         | GND                  | GND                    |
| 4               | 480                    | I/O              | —           | —                    | AJ29                   |
| 4               | 481                    | I/O              | AL33        | AA21                 | AJ30                   |
| 4               | 482                    | I/O              | —           | —                    | AH28                   |
| 4               | 483                    | I/O              | AK30        | Y22                  | AH29                   |
| —               | 484                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 485                    | GNDINT           | GND         | GND                  | GND                    |
| 4               | 486                    | I/O              | —           | —                    | AH30                   |
| 4               | 487                    | I/O              | —           | —                    | AG27                   |
| 4               | 488                    | I/O              | AK31        | AB21                 | AG28                   |
| 4               | 489                    | I/O              | —           | —                    | AF27                   |
| 4               | 490                    | I/O              | AK32        | U19                  | AF28                   |
| —               | 491                    | VCCIO            | VCCIO4      | VCCIO4               | VCCIO4                 |
| 4               | 492                    | I/O              | —           | —                    | AE26                   |
| 4               | 493                    | I/O              | —           | —                    | AE27                   |
| 4               | 494                    | I/O              | AL34        | AB22                 | AE28                   |
| 4               | 495                    | I/O              | —           | —                    | AE29                   |
| 4               | 496                    | I/O              | AM35        | V19                  | AE30                   |
| —               | 497                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 498                    | GNDINT           | GND         | GND                  | GND                    |
| 4               | 499                    | I/O              | —           | —                    | AD26                   |
| 4               | 500                    | I/O              | —           | —                    | AD27                   |
| 4               | 501                    | I/O              | AJ30        | T18                  | AD28                   |
| 4               | 502                    | I/O              | —           | —                    | AD29                   |
| 4               | 503                    | I/O              | AJ31        | W21                  | AD30                   |
| —               | 504                    | GNDIO            | GND         | GND                  | GND                    |
| 4               | 505                    | I/O              | —           | —                    | AC26                   |
| 4               | 506                    | I/O              | —           | —                    | AC27                   |
| 4               | 507                    | I/O              | AJ32        | V20                  | AC28                   |
| 4               | 508                    | I/O              | —           | —                    | AC29                   |
| 4               | 509                    | I/O              | AJ33        | V21                  | AB26                   |
| —               | 510                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 511                    | GNDINT           | GND         | GND                  | GND                    |
| 4               | 512                    | I/O              | —           | —                    | AB27                   |
| 4               | 513                    | I/O              | —           | —                    | AB28                   |
| 4               | 514                    | I/O              | AK34        | Y21                  | AA22                   |
| 4               | 515                    | I/O              | —           | —                    | AA23                   |
| 4               | 516                    | I/O              | AL35        | W22                  | AA24                   |
| —               | 517                    | VCCIO            | VCCIO4      | VCCIO4               | VCCIO4                 |
| 4               | 518                    | I/O              | —           | —                    | AA25                   |
| 4               | 519                    | I/O              | —           | —                    | AA26                   |
| 4               | 520                    | I/O              | AJ34        | AA22                 | AA27                   |
| 4               | 521                    | I/O              | —           | —                    | AA28                   |
| 4               | 522                    | I/O              | AH30        | U20                  | Y22                    |
| —               | 523                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| –               | 524                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 525                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 526                    | GNDINT           | GND         | GND                  | GND                    |
| 4               | 527                    | I/O              | AH32        | R17                  | Y23                    |
| 4               | 528                    | I/O              | AH33        | W23                  | Y24                    |
| 4               | 529                    | I/O              | AK35        | T19                  | Y25                    |
| 4               | 530                    | I/O              | AH34        | U21                  | Y26                    |
| 4               | 531                    | I/O              | AJ35        | P17                  | Y27                    |
| –               | 532                    | GNDIO            | GND         | GND                  | GND                    |
| 4               | 533                    | I/O              | AG30        | R18                  | Y28                    |
| 4               | 534                    | I/O              | AG31        | W24                  | Y29                    |
| 4               | 535                    | I/O              | AG32        | T20                  | W22                    |
| 4               | 536                    | I/O              | AG33        | V24                  | W23                    |
| 4               | 537                    | I/O              | AG34        | N16                  | W25                    |
| –               | 538                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 539                    | GNDINT           | GND         | GND                  | GND                    |
| 4               | 540                    | I/O              | AG35        | V22                  | W26                    |
| 4               | 541                    | I/O              | AF30        | R19                  | W27                    |
| 4               | 542                    | I/O              | AF31        | V23                  | W28                    |
| 4               | 543                    | I/O              | AF32        | P18                  | W29                    |
| 4               | 544                    | I/O              | AF33        | N17                  | V22                    |
| –               | 545                    | VCCIO            | VCCIO4      | VCCIO4               | VCCIO4                 |
| 4               | 546                    | I/O              | AF34        | T21                  | V23                    |
| 4               | 547                    | I/O              | AF35        | R21                  | V25                    |
| 4               | 548                    | I/O              | AE30        | U22                  | V26                    |
| 4               | 549                    | I/O              | AE31        | R20                  | V27                    |
| 4               | 550                    | I/O              | AE32        | P22                  | V28                    |
| –               | 551                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 552                    | GNDINT           | GND         | GND                  | GND                    |
| 4               | 553                    | I/O              | AE34        | N18                  | V29                    |
| 4               | 554                    | I/O              | AE35        | U23                  | U22                    |
| 4               | 555                    | I/O              | AD30        | N19                  | U23                    |
| 4               | 556                    | I/O              | AD31        | N22                  | U24                    |
| 4               | 557                    | I/O              | AD32        | L20                  | U25                    |
| –               | 558                    | GNDIO            | GND         | GND                  | GND                    |
| 4               | 559                    | I/O              | AD33        | M17                  | U26                    |
| 4               | 560                    | I/O              | AD34        | T22                  | U27                    |
| 4               | 561                    | I/O              | AD35        | M18                  | U28                    |
| 4               | 562                    | I/O              | AC30        | T23                  | U29                    |
| 4               | 563                    | I/O              | AC31        | R23                  | T22                    |
| –               | 564                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 565                    | GNDINT           | GND         | GND                  | GND                    |
| 4               | 566                    | I/O              | AC33        | U24                  | T23                    |
| 4               | 567                    | I/O              | AC34        | R24                  | T25                    |
| 4               | 568                    | I/O              | AC35        | T24                  | T26                    |
| 4               | 569                    | I/O              | AB30        | M21                  | T27                    |
| 4               | 570                    | I/O              | AB31        | M24                  | T28                    |
| –               | 571                    | VCCIO            | VCCIO4      | VCCIO4               | VCCIO4                 |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function       | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------------|-------------|----------------------|------------------------|
| 4               | 572                    | I/O                    | AB32        | M22                  | T29                    |
| 4               | 573                    | I/O                    | AB33        | R22                  | R22                    |
| 4               | 574                    | I/O                    | AB34        | M23                  | R23                    |
| 4               | 575                    | I/O                    | AB35        | L22                  | R24                    |
| 4               | 576                    | I/O, LOCK1 (9)         | AA30        | L21                  | AC30                   |
| –               | 577                    | VCCINT                 | VCCINT      | VCCINT               | VCCINT                 |
| –               | 578                    | GNDINT                 | GND         | GND                  | GND                    |
| 4               | 579                    | I/O                    | AA32        | L23                  | R25                    |
| 4               | 580                    | I/O                    | AA33        | L24                  | R26                    |
| 4               | 581                    | I/O                    | AA34        | N23                  | R27                    |
| –               | 582                    | VCC_CLKL1 (2)          | AA35        | AF18                 | W24                    |
| –               | 583                    | GND_CLKL1 (2)          | Y30         | AE18                 | V24                    |
| –               | 584                    | GND_CLKL1 (2)          | Y30         | AE18                 | V24                    |
| –               | 585                    | GNDIO                  | GND         | GND                  | GND                    |
| 4               | 586                    | I/O, CLKLK_FB1n (4)    | Y31         | AF20                 | AM28                   |
| 4               | 587                    | CLKLK_FB1p             | Y32         | AE20                 | AL28                   |
| 4               | 588                    | I/O, CLK3n (4)         | Y33         | M20                  | Y30                    |
| 4               | 589                    | CLK3p                  | Y34         | M19                  | W30                    |
| 4               | 590                    | I/O, CLK1n (4)         | Y35         | P19                  | V30                    |
| –               | 591                    | VCCINT                 | VCCINT      | VCCINT               | VCCINT                 |
| –               | 592                    | GNDINT                 | GND         | GND                  | GND                    |
| –               | 593                    | nCONFIG (5)            | W32         | P21                  | R30                    |
| –               | 594                    | CLKLK_ENA (5), (10)    | W33         | P16                  | P30                    |
| 4               | 595                    | CLK1p                  | W34         | P20                  | N30                    |
| –               | 596                    | MSEL1 (5)              | W35         | N20                  | K30                    |
| –               | 597                    | MSEL0 (5)              | U35         | N21                  | J30                    |
| –               | 598                    | GNDINT                 | GND         | GND                  | GND                    |
| –               | 599                    | VCCINT                 | VCCINT      | VCCINT               | VCCINT                 |
| –               | 600                    | VCC_CKOUT1 (7)         | U33         | AF22                 | N24                    |
| –               | 601                    | GND_CKOUT1 (7)         | U32         | AE22                 | T24                    |
| –               | 602                    | CLKLK_OUT1p (8)        | U31         | AE23                 | AM29                   |
| 3               | 603                    | I/O, CLKLK_OUT1n (4)   | T35         | AF23                 | AL29                   |
| –               | 604                    | VCC_CLKL3 (2)          | T34         | AC26                 | M24                    |
| –               | 605                    | VCCIO                  | VCCIO3      | VCCIO3               | VCCIO3                 |
| –               | 606                    | GND_CLKL3 (2)          | V35         | N25                  | P23                    |
| –               | 607                    | GND_CLKL3 (2)          | T33         | AC25                 | P24                    |
| 3               | 608                    | I/O, LVDSRXINCLK1p     | T32         | AB25                 | B29                    |
| 3               | 609                    | I/O, LVDSRXINCLK1n (4) | T31         | AB26                 | A29                    |
| 3               | 610                    | I/O                    | T30         | J23                  | R28                    |
| 3               | 611                    | I/O                    | R35         | L19                  | R29                    |
| –               | 612                    | GNDINT                 | GND         | GND                  | GND                    |
| –               | 613                    | VCCINT                 | VCCINT      | VCCINT               | VCCINT                 |
| 3               | 614                    | I/O, LVDSRX01p         | R33         | AA25                 | AJ32                   |
| 3               | 615                    | I/O, LVDSRX01n (4)     | R32         | AA26                 | AJ31                   |
| 3               | 616                    | I/O, LOCK3 (9)         | R31         | L18                  | H30                    |
| 3               | 617                    | I/O, LVDSRX02n (4)     | R30         | Y25                  | AH32                   |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function   | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|--------------------|-------------|----------------------|------------------------|
| 3               | 618                    | I/O, LVDSRX02p     | P35         | Y26                  | AH31                   |
| –               | 619                    | GNDIO              | GND         | GND                  | GND                    |
| 3               | 620                    | I/O, LVDSRX03p     | P34         | W25                  | AE32                   |
| 3               | 621                    | I/O, LVDSRX03n (4) | P33         | W26                  | AE31                   |
| 3               | 622                    | I/O                | P32         | J24                  | P22                    |
| 3               | 623                    | I/O, LVDSRX04n (4) | P31         | V25                  | AD32                   |
| 3               | 624                    | I/O, LVDSRX04p     | P30         | V26                  | AD31                   |
| –               | 625                    | GNDINT             | GND         | GND                  | GND                    |
| –               | 626                    | VCCINT             | VCCINT      | VCCINT               | VCCINT                 |
| 3               | 627                    | I/O, LVDSRX05p     | N34         | U25                  | AC32                   |
| 3               | 628                    | I/O, LVDSRX05n (4) | N33         | U26                  | AC31                   |
| 3               | 629                    | I/O                | N32         | K21                  | P25                    |
| 3               | 630                    | I/O, LVDSRX06n (4) | N31         | T25                  | Y32                    |
| 3               | 631                    | I/O, LVDSRX06p     | N30         | T26                  | Y31                    |
| –               | 632                    | VCCIO              | VCCIO3      | VCCIO3               | VCCIO3                 |
| 3               | 633                    | I/O, LVDSRX07p     | M35         | R25                  | W32                    |
| 3               | 634                    | I/O, LVDSRX07n (4) | M34         | R26                  | W31                    |
| 3               | 635                    | I/O                | M33         | K23                  | P26                    |
| 3               | 636                    | I/O, LVDSRX08n (4) | M32         | M25                  | V32                    |
| 3               | 637                    | I/O, LVDSRX08p     | M31         | M26                  | V31                    |
| –               | 638                    | GNDINT             | GND         | GND                  | GND                    |
| –               | 639                    | VCCINT             | VCCINT      | VCCINT               | VCCINT                 |
| 3               | 640                    | I/O, LVDSRX09p     | L35         | L25                  | R32                    |
| 3               | 641                    | I/O, LVDSRX09n (4) | L34         | L26                  | R31                    |
| 3               | 642                    | I/O                | L33         | K20                  | P27                    |
| 3               | 643                    | I/O, LVDSRX10n (4) | L32         | K25                  | P32                    |
| 3               | 644                    | I/O, LVDSRX10p     | L31         | K26                  | P31                    |
| –               | 645                    | GNDIO              | GND         | GND                  | GND                    |
| 3               | 646                    | I/O, LVDSRX11p     | L30         | J25                  | N32                    |
| 3               | 647                    | I/O, LVDSRX11n (4) | K35         | J26                  | N31                    |
| 3               | 648                    | I/O                | K34         | K22                  | P28                    |
| 3               | 649                    | I/O, LVDSRX12n (4) | K33         | H25                  | K32                    |
| 3               | 650                    | I/O, LVDSRX12p     | K32         | H26                  | K31                    |
| –               | 651                    | GNDINT             | GND         | GND                  | GND                    |
| –               | 652                    | VCCINT             | VCCINT      | VCCINT               | VCCINT                 |
| 3               | 653                    | I/O, LVDSRX13p     | K30         | G25                  | J32                    |
| 3               | 654                    | I/O, LVDSRX13n (4) | J35         | G26                  | J31                    |
| 3               | 655                    | I/O                | H35         | K24                  | P29                    |
| 3               | 656                    | I/O, LVDSRX14n (4) | J34         | F25                  | H32                    |
| 3               | 657                    | I/O, LVDSRX14p     | J33         | F26                  | H31                    |
| –               | 658                    | VCCIO              | VCCIO3      | VCCIO3               | VCCIO3                 |
| 3               | 659                    | I/O, LVDSRX15p     | J32         | E25                  | E32                    |
| 3               | 660                    | I/O, LVDSRX15n (4) | J31         | E26                  | E31                    |
| 3               | 661                    | I/O                | J30         | H24                  | N22                    |
| 3               | 662                    | I/O, LVDSRX16n (4) | G35         | D25                  | D32                    |
| 3               | 663                    | I/O, LVDSRX16p     | H34         | D26                  | D31                    |
| –               | 664                    | GNDINT             | GND         | GND                  | GND                    |
| –               | 665                    | VCCINT             | VCCINT      | VCCINT               | VCCINT                 |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| –               | 666                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 667                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| 3               | 668                    | I/O              | H33         | K19                  | N23                    |
| 3               | 669                    | I/O              | –           | –                    | N25                    |
| 3               | 670                    | I/O              | H32         | J20                  | N26                    |
| 3               | 671                    | I/O              | –           | –                    | N27                    |
| 3               | 672                    | I/O              | –           | –                    | N28                    |
| –               | 673                    | GNDIO            | GND         | GND                  | GND                    |
| 3               | 674                    | I/O              | H31         | G22                  | N29                    |
| 3               | 675                    | I/O              | –           | –                    | M22                    |
| 3               | 676                    | I/O              | H30         | H20                  | M23                    |
| 3               | 677                    | I/O              | –           | –                    | M25                    |
| 3               | 678                    | I/O              | –           | –                    | M26                    |
| –               | 679                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 680                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| 3               | 681                    | I/O              | G34         | H22                  | M27                    |
| 3               | 682                    | I/O              | –           | –                    | M28                    |
| 3               | 683                    | I/O              | E35         | J22                  | L26                    |
| 3               | 684                    | I/O              | –           | –                    | L27                    |
| 3               | 685                    | I/O              | –           | –                    | L28                    |
| –               | 686                    | VCCIO            | VCCIO3      | VCCIO3               | VCCIO3                 |
| 3               | 687                    | I/O              | F34         | G24                  | K26                    |
| 3               | 688                    | I/O              | –           | –                    | K27                    |
| 3               | 689                    | I/O              | G33         | H21                  | K28                    |
| 3               | 690                    | I/O              | –           | –                    | K29                    |
| 3               | 691                    | I/O              | –           | –                    | J26                    |
| –               | 692                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 693                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| 3               | 694                    | I/O              | G32         | G21                  | J27                    |
| 3               | 695                    | I/O              | –           | –                    | J28                    |
| 3               | 696                    | I/O              | G31         | J21                  | J29                    |
| 3               | 697                    | I/O              | –           | –                    | H26                    |
| 3               | 698                    | I/O              | –           | –                    | H27                    |
| –               | 699                    | GNDIO            | GND         | GND                  | GND                    |
| 3               | 700                    | I/O              | D35         | F22                  | H28                    |
| 3               | 701                    | I/O              | –           | –                    | H29                    |
| 3               | 702                    | I/O              | E34         | G20                  | G27                    |
| 3               | 703                    | I/O              | –           | –                    | G28                    |
| 3               | 704                    | I/O              | –           | –                    | F28                    |
| –               | 705                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 706                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| 3               | 707                    | I/O              | F33         | F21                  | E28                    |
| 3               | 708                    | I/O              | –           | –                    | E29                    |
| 3               | 709                    | I/O              | F32         | E22                  | E30                    |
| 3               | 710                    | I/O              | –           | –                    | D28                    |
| –               | 711                    | VCCIO            | VCCIO3      | VCCIO3               | VCCIO3                 |
| –               | 712                    | VCCIO            | VCCIO2      | VCCIO2               | VCCIO2                 |
| 2               | 713                    | I/O              | –           | E23                  | D29                    |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 2               | 714                    | I/O              | —           | D22                  | D30                    |
| 2               | 715                    | I/O              | —           | F24                  | C28                    |
| —               | 716                    | GNDINT           | GND         | GND                  | GND                    |
| —               | 717                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| 2               | 718                    | I/O              | —           | E24                  | C29                    |
| 2               | 719                    | I/O              | —           | H23                  | B28                    |
| 2               | 720                    | I/O              | E29         | C23                  | A28                    |
| 2               | 721                    | I/O              | —           | —                    | F27                    |
| 2               | 722                    | I/O              | D30         | G23                  | E27                    |
| 2               | 723                    | I/O              | —           | —                    | G26                    |
| 2               | 724                    | I/O              | B33         | C22                  | F26                    |
| —               | 725                    | GNDIO            | GND         | GND                  | GND                    |
| 2               | 726                    | I/O              | C31         | F23                  | E26                    |
| 2               | 727                    | I/O              | A34         | B23                  | L25                    |
| 2               | 728                    | I/O              | B32         | A23                  | K25                    |
| 2               | 729                    | I/O              | E28         | E21                  | J25                    |
| 2               | 730                    | I/O              | D29         | B22                  | H25                    |
| 2               | 731                    | I/O              | —           | —                    | G25                    |
| 2               | 732                    | I/O              | C30         | F20                  | F25                    |
| 2               | 733                    | I/O              | —           | —                    | E25                    |
| 2               | 734                    | I/O              | A33         | D21                  | D25                    |
| 2               | 735                    | I/O              | —           | —                    | C25                    |
| —               | 736                    | VCCIO            | VCCIO2      | VCCIO2               | VCCIO2                 |
| 2               | 737                    | I/O              | —           | —                    | B25                    |
| 2               | 738                    | I/O              | B31         | C21                  | A25                    |
| 2               | 739                    | I/O              | —           | —                    | L24                    |
| 2               | 740                    | I/O              | E27         | E20                  | K24                    |
| 2               | 741                    | I/O              | —           | —                    | J24                    |
| 2               | 742                    | I/O              | A32         | J19                  | H24                    |
| 2               | 743                    | I/O              | D28         | A22                  | G24                    |
| 2               | 744                    | I/O              | C29         | G19                  | F24                    |
| 2               | 745                    | I/O              | B30         | F19                  | E24                    |
| 2               | 746                    | I/O              | A31         | E19                  | D24                    |
| —               | 747                    | GNDIO            | GND         | GND                  | GND                    |
| 2               | 748                    | I/O              | D27         | K18                  | C24                    |
| 2               | 749                    | I/O              | —           | —                    | B24                    |
| 2               | 750                    | I/O              | E26         | D20                  | L23                    |
| 2               | 751                    | I/O              | —           | —                    | K23                    |
| 2               | 752                    | I/O              | C28         | H18                  | J23                    |
| 2               | 753                    | I/O              | —           | —                    | H23                    |
| 2               | 754                    | I/O              | —           | —                    | G23                    |
| 2               | 755                    | I/O              | B29         | C20                  | F23                    |
| 2               | 756                    | I/O              | —           | —                    | E23                    |
| 2               | 757                    | I/O              | A30         | G18                  | D23                    |
| —               | 758                    | VCCIO            | VCCIO2      | VCCIO2               | VCCIO2                 |
| 2               | 759                    | I/O              | —           | —                    | C23                    |
| 2               | 760                    | I/O              | D26         | D19                  | B23                    |
| 2               | 761                    | I/O              | C27         | E18                  | L22                    |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 2               | 762                    | I/O              | E25         | B20                  | K22                    |
| 2               | 763                    | I/O              | B28         | A20                  | J22                    |
| 2               | 764                    | I/O              | A29         | F18                  | H22                    |
| 2               | 765                    | I/O              | D25         | C19                  | G22                    |
| 2               | 766                    | I/O              | —           | —                    | F22                    |
| 2               | 767                    | I/O              | C26         | E17                  | E22                    |
| 2               | 768                    | I/O              | —           | —                    | —                      |
| 2               | 769                    | I/O              | B27         | D18                  | L21                    |
| —               | 770                    | GNDIO            | GND         | GND                  | GND                    |
| —               | 771                    | GNDINT           | GND         | GND                  | GND                    |
| —               | 772                    | GNDINT           | GND         | GND                  | GND                    |
| —               | 773                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 774                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| —               | 775                    | GNDINT           | —           | —                    | —                      |
| 2               | 776                    | I/O              | A28         | F17                  | K21                    |
| 2               | 777                    | I/O              | —           | —                    | —                      |
| 2               | 778                    | I/O              | C25         | C18                  | J21                    |
| 2               | 779                    | I/O              | —           | —                    | H21                    |
| 2               | 780                    | I/O              | B26         | G17                  | G21                    |
| 2               | 781                    | I/O              | A27         | B18                  | F21                    |
| 2               | 782                    | I/O              | E23         | H17                  | E21                    |
| 2               | 783                    | I/O              | D23         | F16                  | L20                    |
| 2               | 784                    | I/O              | C24         | D17                  | K20                    |
| 2               | 785                    | I/O              | B25         | J17                  | J20                    |
| 2               | 786                    | I/O              | —           | —                    | H20                    |
| —               | 787                    | VCCIO            | VCCIO2      | VCCIO2               | VCCIO2                 |
| 2               | 788                    | I/O              | E22         | E16                  | G20                    |
| 2               | 789                    | I/O              | —           | —                    | F20                    |
| 2               | 790                    | I/O              | A26         | G16                  | E20                    |
| 2               | 791                    | I/O              | —           | —                    | D20                    |
| 2               | 792                    | I/O              | —           | —                    | C20                    |
| 2               | 793                    | I/O              | C23         | A18                  | B20                    |
| 2               | 794                    | I/O              | —           | —                    | L19                    |
| 2               | 795                    | I/O              | B24         | H16                  | K19                    |
| 2               | 796                    | I/O              | —           | —                    | J19                    |
| 2               | 797                    | I/O              | D22         | C17                  | H19                    |
| —               | 798                    | GNDIO            | GND         | GND                  | GND                    |
| 2               | 799                    | I/O              | A25         | E15                  | G19                    |
| 2               | 800                    | I/O              | E21         | D16                  | F19                    |
| 2               | 801                    | I/O              | C22         | B17                  | E19                    |
| 2               | 802                    | I/O              | B23         | F15                  | D19                    |
| 2               | 803                    | I/O              | A24         | A17                  | C19                    |
| 2               | 804                    | I/O              | —           | —                    | B19                    |
| 2               | 805                    | I/O              | A23         | E14                  | L18                    |
| 2               | 806                    | I/O              | —           | —                    | K18                    |
| 2               | 807                    | I/O              | D21         | H15                  | J18                    |
| 2               | 808                    | I/O              | —           | —                    | H18                    |
| —               | 809                    | VCCIO            | VCCIO2      | VCCIO2               | VCCIO2                 |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function  | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|-------------------|-------------|----------------------|------------------------|
| 2               | 810                    | I/O               | –           | –                    | G18                    |
| 2               | 811                    | I/O               | C21         | E13                  | F18                    |
| 2               | 812                    | I/O               | –           | –                    | E18                    |
| 2               | 813                    | I/O               | E20         | L14                  | D18                    |
| 2               | 814                    | I/O               | –           | –                    | C18                    |
| 2               | 815                    | I/O               | B22         | G15                  | B18                    |
| 2               | 816                    | I/O               | A22         | K15                  | L17                    |
| 2               | 817                    | I/O               | B21         | J16                  | K17                    |
| 2               | 818                    | I/O               | A21         | C16                  | J17                    |
| 2               | 819                    | I/O               | D20         | B16                  | H17                    |
| –               | 820                    | GNDIO             | GND         | GND                  | GND                    |
| 2               | 821                    | I/O               | C20         | C15                  | G17                    |
| 2               | 822                    | I/O               | –           | –                    | F17                    |
| 2               | 823                    | I/O               | B20         | B15                  | E17                    |
| 2               | 824                    | I/O               | –           | –                    | D17                    |
| 2               | 825                    | I/O               | A20         | A15                  | C17                    |
| –               | 826                    | VCCIO             | VCCIO2      | VCCIO2               | VCCIO2                 |
| –               | 827                    | TRST (5)          | D19         | F14                  | A24                    |
| –               | 828                    | NCEO (5)          | C19         | G14                  | A23                    |
| 1               | 829                    | FAST1             | B19         | H14                  | A20                    |
| –               | 830                    | GNDINT            | GND         | GND                  | GND                    |
| –               | 831                    | GNDINT            | GND         | GND                  | GND                    |
| –               | 832                    | VCCINT            | VCCINT      | VCCINT               | VCCINT                 |
| –               | 833                    | VCCINT            | VCCINT      | VCCINT               | VCCINT                 |
| –               | 834                    | VCCIO             | VCCIO1      | VCCIO1               | VCCIO1                 |
| 1               | 835                    | FAST2             | B17         | F13                  | A19                    |
| –               | 836                    | TDO (5)           | C17         | G13                  | A18                    |
| –               | 837                    | GNDINT            | GND         | GND                  | –                      |
| 1               | 838                    | I/O               | A16         | C14                  | C16                    |
| 1               | 839                    | I/O               | –           | –                    | D16                    |
| 1               | 840                    | I/O               | B16         | B14                  | E16                    |
| 1               | 841                    | I/O               | –           | –                    | F16                    |
| 1               | 842                    | I/O, INITDONE (3) | C16         | J15                  | A15                    |
| –               | 843                    | GNDIO             | GND         | GND                  | GND                    |
| 1               | 844                    | I/O               | D16         | C12                  | G16                    |
| 1               | 845                    | I/O               | A15         | B13                  | H16                    |
| 1               | 846                    | I/O               | B15         | C11                  | J16                    |
| 1               | 847                    | I/O, RDYNBSY (1)  | A14         | J14                  | A14                    |
| 1               | 848                    | I/O               | B14         | D15                  | K16                    |
| 1               | 849                    | I/O               | –           | –                    | L16                    |
| 1               | 850                    | I/O               | E16         | D14                  | B15                    |
| 1               | 851                    | I/O               | –           | –                    | C15                    |
| 1               | 852                    | I/O, CLKUSR (1)   | C15         | K14                  | A13                    |
| 1               | 853                    | I/O               | –           | –                    | D15                    |
| –               | 854                    | VCCIO             | VCCIO1      | VCCIO1               | VCCIO1                 |
| 1               | 855                    | I/O               | –           | –                    | E15                    |
| 1               | 856                    | I/O               | D15         | A12                  | F15                    |
| 1               | 857                    | I/O               | –           | –                    | G15                    |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 1               | 858                    | I/O              | A13         | D13                  | H15                    |
| 1               | 859                    | I/O              | –           | –                    | J15                    |
| 1               | 860                    | I/O              | A12         | B11                  | K15                    |
| 1               | 861                    | I/O              | B13         | B12                  | L15                    |
| 1               | 862                    | I/O              | C14         | H13                  | B14                    |
| 1               | 863                    | I/O              | E15         | F12                  | C14                    |
| 1               | 864                    | I/O              | A11         | A11                  | D14                    |
| –               | 865                    | GNDIO            | GND         | GND                  | GND                    |
| 1               | 866                    | I/O              | D14         | E12                  | E14                    |
| 1               | 867                    | I/O              | –           | –                    | F14                    |
| 1               | 868                    | I/O              | B12         | A10                  | G14                    |
| 1               | 869                    | I/O              | –           | –                    | H14                    |
| 1               | 870                    | I/O, DATA1 (1)   | C13         | K13                  | A10                    |
| 1               | 871                    | I/O              | –           | –                    | J14                    |
| 1               | 872                    | I/O              | –           | –                    | K14                    |
| 1               | 873                    | I/O              | A10         | D12                  | L14                    |
| 1               | 874                    | I/O              | –           | –                    | B13                    |
| 1               | 875                    | I/O              | E14         | D11                  | C13                    |
| –               | 876                    | VCCIO            | VCCIO1      | VCCIO1               | VCCIO1                 |
| 1               | 877                    | I/O              | –           | –                    | D13                    |
| 1               | 878                    | I/O              | B11         | E11                  | E13                    |
| 1               | 879                    | I/O              | C12         | B10                  | F13                    |
| 1               | 880                    | I/O              | D13         | C10                  | G13                    |
| 1               | 881                    | I/O              | E13         | J13                  | H13                    |
| 1               | 882                    | I/O              | A9          | D10                  | J13                    |
| 1               | 883                    | I/O              | B10         | H12                  | K13                    |
| 1               | 884                    | I/O              | –           | –                    | L13                    |
| 1               | 885                    | I/O              | C11         | E10                  | E12                    |
| 1               | 886                    | I/O              | –           | –                    | –                      |
| 1               | 887                    | I/O, DATA2 (1)   | A8          | J12                  | A9                     |
| –               | 888                    | GNDIO            | GND         | GND                  | GND                    |
| –               | 889                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 890                    | GNDINT           | GND         | GND                  | GND                    |
| –               | 891                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| –               | 892                    | VCCINT           | VCCINT      | VCCINT               | VCCINT                 |
| 1               | 893                    | I/O              | B9          | F11                  | F12                    |
| 1               | 894                    | I/O              | –           | –                    | –                      |
| 1               | 895                    | I/O              | C10         | B9                   | G12                    |
| 1               | 896                    | I/O              | –           | –                    | H12                    |
| 1               | 897                    | I/O              | D11         | G12                  | J12                    |
| 1               | 898                    | I/O              | A7          | C9                   | K12                    |
| 1               | 899                    | I/O              | B8          | G11                  | L12                    |
| 1               | 900                    | I/O              | E11         | E9                   | E11                    |
| 1               | 901                    | I/O              | C9          | F9                   | F11                    |
| 1               | 902                    | I/O              | D10         | D9                   | G11                    |
| 1               | 903                    | I/O              | –           | –                    | H11                    |
| –               | 904                    | VCCIO            | VCCIO1      | VCCIO1               | VCCIO1                 |
| 1               | 905                    | I/O              | A6          | K12                  | J11                    |

| I/O & VREF Bank | Pad Number Orientation | Pin/Pad Function | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA |
|-----------------|------------------------|------------------|-------------|----------------------|------------------------|
| 1               | 906                    | I/O              | –           | –                    | K11                    |
| 1               | 907                    | I/O, DATA3 (1)   | B7          | F10                  | A8                     |
| 1               | 908                    | I/O              | –           | –                    | L11                    |
| 1               | 909                    | I/O              | –           | –                    | B10                    |
| 1               | 910                    | I/O              | C8          | A9                   | C10                    |
| 1               | 911                    | I/O              | –           | –                    | D10                    |
| 1               | 912                    | I/O              | E10         | H11                  | E10                    |
| 1               | 913                    | I/O              | –           | –                    | F10                    |
| 1               | 914                    | I/O              | D9          | D8                   | G10                    |
| –               | 915                    | GNDIO            | GND         | GND                  | GND                    |
| 1               | 916                    | I/O              | A5          | E8                   | H10                    |
| 1               | 917                    | I/O              | B6          | C8                   | J10                    |
| 1               | 918                    | I/O              | C7          | F8                   | K10                    |
| 1               | 919                    | I/O              | D8          | E7                   | L10                    |
| 1               | 920                    | I/O              | A4          | G10                  | B9                     |
| 1               | 921                    | I/O              | –           | –                    | C9                     |
| 1               | 922                    | I/O              | E9          | C7                   | D9                     |
| 1               | 923                    | I/O              | –           | –                    | E9                     |
| 1               | 924                    | I/O, DATA4 (1)   | B5          | G9                   | B5                     |
| 1               | 925                    | I/O              | –           | –                    | F9                     |
| –               | 926                    | VCCIO            | VCCIO1      | VCCIO1               | VCCIO1                 |
| 1               | 927                    | I/O              | –           | –                    | G9                     |
| 1               | 928                    | I/O              | A3          | H10                  | H9                     |
| 1               | 929                    | I/O              | –           | –                    | J9                     |
| 1               | 930                    | I/O              | C6          | B7                   | K9                     |
| 1               | 931                    | I/O              | –           | –                    | L9                     |
| 1               | 932                    | I/O              | D7          | J11                  | B8                     |
| 1               | 933                    | I/O              | E8          | D7                   | C8                     |
| 1               | 934                    | I/O              | B4          | D6                   | D8                     |
| 1               | 935                    | I/O              | A2          | A7                   | E8                     |
| 1               | 936                    | I/O              | C5          | F7                   | F8                     |
| –               | 937                    | GNDIO            | GND         | GND                  | GND                    |
| 1               | 938                    | I/O              | B3          | E6                   | G8                     |
| 1               | 939                    | I/O              | –           | –                    | H8                     |
| 1               | 940                    | I/O              | D6          | C5                   | E7                     |
| 1               | 941                    | I/O              | –           | –                    | F7                     |
| 1               | 942                    | I/O, DATA5 (1)   | E7          | F6                   | A5                     |
| 1               | 943                    | –                | –           | –                    | –                      |

| <b>Pin Name</b>     | <b>652-Pin BGA</b>   | <b>672-Pin FineLine BGA</b> | <b>1,020-Pin FineLine BGA</b> |
|---------------------|----------------------|-----------------------------|-------------------------------|
| MSEL0 (5)           | U35                  | N21                         | J30                           |
| MSEL1 (5)           | W35                  | N20                         | K30                           |
| nSTATUS (5)         | AN17                 | AA13                        | AM14                          |
| nCONFIG (5)         | W32                  | P21                         | R30                           |
| DCLK (5)            | U3                   | N7                          | W3                            |
| CONF_DONE (5)       | AM17                 | AA12                        | AM13                          |
| INIT_DONE (3)       | C16                  | J15                         | A15                           |
| nCE (5)             | U1                   | P6                          | AC3                           |
| nCEO (5)            | C19                  | G14                         | A23                           |
| nWS (1)             | M1                   | P9                          | C4                            |
| nRS (1)             | N1                   | N10                         | D4                            |
| nCS (1)             | P2                   | M9                          | D3                            |
| CS (1)              | R2                   | T6                          | E3                            |
| RDYnBSY (1)         | A14                  | J14                         | A14                           |
| CLKUSR (1)          | C15                  | K14                         | A13                           |
| DATA7 (1)           | M6                   | M10                         | B4                            |
| DATA6 (1)           | L6                   | L8                          | A4                            |
| DATA5 (1)           | E7                   | F6                          | A5                            |
| DATA4 (1)           | B5                   | G9                          | B5                            |
| DATA3 (1)           | B7                   | F10                         | A8                            |
| DATA2 (1)           | A8                   | J12                         | A9                            |
| DATA1 (1)           | C13                  | K13                         | A10                           |
| DATA0 (5), (6)      | U4                   | N6                          | V3                            |
| TDI (5)             | W1                   | P7                          | AD3                           |
| TDO (5)             | C17                  | G13                         | A18                           |
| TCK (5)             | AN19                 | AA14                        | AM19                          |
| TMS (5)             | AM19                 | AA15                        | AM20                          |
| TRST (5)            | D19                  | F14                         | A24                           |
| Dedicated Fast I/Os | AP19, AP17, B17, B19 | Y14, Y13, F13, H14          | AM18, AM15, A19, A20          |
| CLK1p               | W34                  | P20                         | N30                           |
| CLK2p               | U2                   | N8                          | Y3                            |
| CLK3p               | Y34                  | M19                         | W30                           |
| CLK4p               | T2                   | R6                          | P3                            |
| LOCK1 (9)           | AA30                 | L21                         | AC30                          |
| LOCK2 (9)           | AB6                  | U6                          | AK4                           |
| LOCK3 (9)           | R31                  | L18                         | H30                           |
| LOCK4 (9)           | AC6                  | W7                          | AK5                           |
| CLKLK_ENA (5), (10) | W33                  | P16                         | P30                           |
| CLKLK_OUT1p (8)     | U31                  | AE23                        | AM29                          |
| CLKLK_OUT2p (8)     | Y3                   | T7                          | AH3                           |
| CLKLK_FB1p          | Y32                  | AE20                        | AL28                          |
| CLKLK_FB2p          | T4                   | U8                          | K3                            |
| DEV_CLRn (3)        | T6                   | R9                          | H3                            |
| DEV_OE (3)          | Y5                   | R8                          | AE3                           |

| Pin Name       | 652-Pin BGA                                                                                                                                                                                                                                                                                                                                        | 672-Pin FineLine BGA                                                                                                                                                                                                                                                                                                               | 1,020-Pin FineLine BGA                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VCCINT         | A17, A19, AA31, AA4, AC3, AC32, AE2, AE33, AG1, AH31, AH35, AH4, AK33, AL12, AL2, AL24, AM12, AM24, AR17, AR19, D12, D24, E12, E24, F3, F35, G30, H1, H5, K31, L3, M30, N35, N4, R34, R5, U34, U5, W3, W31                                                                                                                                         | A3, A24, B3, B8, B19, B24, C1, C2, C25, C26, D3, D24, K11, L10, L15, M13, M16, N2, N12, P15, P24, P25, R11, R14, T12, T17, U9, U16, AC3, AC24, AD1, AD2, AD25, AD26, AE3, AE8, AE19, AE24, AF3, AF24                                                                                                                               | A2, B1, F1, F2, L1, L2, U1, U2, U3, AB1, AB2, AG1, AG2, AL1, AM2, AL6, AM6, AL11, AM11, AL17, AM17, AL22, AM22, AL27, AM27, AM31, AL32, AG31, AG32, AB31, AB32, T30, T31, T32, L31, L32, F31, F32, B32, A31, A27, B27, A22, B22, A16, B16, A11, B11, A6, B6                                                                                                                                                                                                             |
| VCCIO1         | C4, D5, E17                                                                                                                                                                                                                                                                                                                                        | A6, J10, L12                                                                                                                                                                                                                                                                                                                       | A12, B12, A7, B7, A3                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| VCCIO2         | E19, D31, C32                                                                                                                                                                                                                                                                                                                                      | A13, K16, M14, A16                                                                                                                                                                                                                                                                                                                 | A30, A26, B26, A21, B21                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| VCCIO3         | F30, F31, U30                                                                                                                                                                                                                                                                                                                                      | A21, L17, N15                                                                                                                                                                                                                                                                                                                      | M31, M32, G31, G32, C32                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| VCCIO4         | W30, AL31, AL32                                                                                                                                                                                                                                                                                                                                    | N24, R16, U18                                                                                                                                                                                                                                                                                                                      | AK32, AF31, AF32, AA31, AA32                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| VCCIO5         | AN32, AN33, AL19                                                                                                                                                                                                                                                                                                                                   | T15, V17, AF21                                                                                                                                                                                                                                                                                                                     | AL21, AM21, AL26, AM26, AM30                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| VCCIO6         | AL17, AM5, AN4                                                                                                                                                                                                                                                                                                                                     | R13, U11, V10, AF13                                                                                                                                                                                                                                                                                                                | AM3, AL7, AM7, AL12, AM12                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| VCCIO7         | AL3, AL4, W6                                                                                                                                                                                                                                                                                                                                       | P12, T10, AF6                                                                                                                                                                                                                                                                                                                      | AA1, AA2, AF1, AF2, AK1                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| VCCIO8         | U6, E3, E4                                                                                                                                                                                                                                                                                                                                         | K9, M11, N3                                                                                                                                                                                                                                                                                                                        | C1, G1, G2, M1, M2                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| VCC_CK1K1 (2)  | AA35                                                                                                                                                                                                                                                                                                                                               | AF18                                                                                                                                                                                                                                                                                                                               | W24                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| VCC_CK1K2 (2)  | W4                                                                                                                                                                                                                                                                                                                                                 | N11                                                                                                                                                                                                                                                                                                                                | Y9                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| VCC_CK1K3 (2)  | T34                                                                                                                                                                                                                                                                                                                                                | AC26                                                                                                                                                                                                                                                                                                                               | M24                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| VCC_CK1K4 (2)  | R4                                                                                                                                                                                                                                                                                                                                                 | P10                                                                                                                                                                                                                                                                                                                                | P9                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| VCC_CKOUT1 (7) | U33                                                                                                                                                                                                                                                                                                                                                | AF22                                                                                                                                                                                                                                                                                                                               | N24                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| VCC_CKOUT2 (7) | Y1                                                                                                                                                                                                                                                                                                                                                 | V7                                                                                                                                                                                                                                                                                                                                 | AA9                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| GND            | A1, A18, A35, AK18, AL18, AL30, AL5, AL6, AM18, AM2, AM3, AM31, AM32, AM33, AM34, AM4, AN1, AN18, AN2, AN3, AN34, AN35, AP1, AP18, AP2, AP34, AP35, AR1, AR18, AR35, B1, B18, B2, B34, B35, C18, C2, C3, C33, C34, C35, D18, D17, D2, D3, D32, D33, D34, D4, E18, E30, E31, E32, E33, E5, E6, F18, V1, V2, V3, V30, V31, V32, V33, V34, V4, V5, V6 | A2, A8, A14, A19, A25, B1, B2, B6, B21, B25, B26, C3, C13, C24, D4, D23, H8, H19, J9, J18, K10, K17, L11, L13, L16, M12, M15, N1, N4, N13, N14, N26, P1, P2, P3, P13, P14, P23, P26, R12, R15, T11, T16, U10, U17, V9, V18, W8, W19, AC4, AC23, AD3, AD13, AD24, AE1, AE2, AE6, AE21, AE25, AE26, AF2, AF8, AF14, AF19, AF25, AF15 | B2, B3, C2, C3, F3, F4, G3, G4, L3, L4, M3, M4, T1, T2, T3, AA3, AA4, AB3, AB4, AF3, AF4, AG3, AG4, AK2, AK3, AL2, AL3, AJ6, AJ7, AK6, AK7, AJ11, AJ12, AK11, AK12, AL16, AM16, AJ21, AJ22, AK21, AK22, AJ26, AJ27, AK26, AK27, AK30, AK31, AL30, AL31, AG29, AG30, AF29, AF30, AB29, AB30, AA29, AA30, U30, U31, U32, M29, M30, L29, L30, G29, G30, F29, F30, C30, C31, B30, B31, C26, C27, D26, D27, C21, C22, D21, D22, A17, B17, C11, C12, D11, D12, C6, C7, D6, D7 |
| GND_CK1K1 (2)  | Y30                                                                                                                                                                                                                                                                                                                                                | AE18                                                                                                                                                                                                                                                                                                                               | V24                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| GND_CK1K2 (2)  | W2                                                                                                                                                                                                                                                                                                                                                 | P11                                                                                                                                                                                                                                                                                                                                | V9                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| GND_CK1K3 (2)  | T33, V35                                                                                                                                                                                                                                                                                                                                           | AC25, N25                                                                                                                                                                                                                                                                                                                          | P24, P23                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| GND_CK1K4 (2)  | R3                                                                                                                                                                                                                                                                                                                                                 | R10                                                                                                                                                                                                                                                                                                                                | T9                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| GND_CKOUT1 (7) | U32                                                                                                                                                                                                                                                                                                                                                | AE22                                                                                                                                                                                                                                                                                                                               | T24                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| GND_CKOUT2 (7) | Y2                                                                                                                                                                                                                                                                                                                                                 | V6                                                                                                                                                                                                                                                                                                                                 | W9                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Pin Name                    | 652-Pin BGA | 672-Pin FineLine BGA | 1,020-Pin FineLine BGA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------|-------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No Connect (N.C.)           |             |                      | M12, M13, M14, M15, M16, M17,<br>M18, M19, M20, M21, N12, N13,<br>N14, N15, N16, N17, N18, N19, N20,<br>N21, P12, P13, P14, P15, P16, P17,<br>P18, P19, P20, P21, R12, R13, R14,<br>R15, R16, R17, R18, R19, R20, R21,<br>T12, T13, T14, T15, T16, T17, T18,<br>T19, T20, T21, U12, U13, U14, U15,<br>U16, U17, U18, U19, U20, U21, V12,<br>V13, V14, V15, V16, V17, V18, V19,<br>V20, V21, W12, W13, W14, W15,<br>W16, W17, W18, W19, W20, W21,<br>Y12, Y13, Y14, Y15, Y16, Y17, Y18,<br>Y19, Y20, Y21, AA12, AA13, AA14,<br>AA15, AA16, AA17, AA18, AA19,<br>AA20, AA21 |
| Total User I/O Pins<br>(11) | 488         | 508                  | 708                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Notes:

- (1) This pin can be used as a user I/O pin after configuration.
- (2) This pin is the power or ground for the ClockLock and ClockBoost circuitry. To ensure noise resistance, the power and ground supply to the ClockLock and ClockBoost circuitry should be isolated from the power and ground to the rest of the device. VCC\_CKCLK has the same voltage specifications as the VCCINT and should be connected to a 1.8-V power supply. If the ClockLock or ClockBoost circuitry is not used, this power or ground pin should be connected to VCCINT or GNDINT, respectively.
- (3) This pin can be used as a user I/O pin if it is not used for its device-wide or configuration function.
- (4) This pin is the complementary signal for the LVDS pair on dedicated inputs and outputs that can be configured for the LVDS standard. If not used for the LVDS pair, these pins are regular I/O pins. Pins with the "n" suffix carry the negative signal for the LVDS channel. Pins with a "p" suffix carry the positive signal for the LVDS channel.
- (5) This pin is a dedicated pin; it is not available as a user I/O pin.
- (6) This pin is tri-stated in user mode.
- (7) This pin is the power or ground for the external output of a PLL. These pins should be set to the VCCIO level/standard desired for the external clock output. To ensure noise resistance, the power and ground supply to the PLL external output should be isolated from the power and ground to the rest of the VCCIO and GNDIO pins. If the PLL or external output is not used, this power or ground pin should be connected to VCCIO or GNDIO, respectively.
- (8) The CLKLK\_OUT pin is powered by the VCC\_CKOUT and GND\_CKOUT pins.
- (9) This pin shows the status of the ClockLock and ClockBoost circuitry. When the ClockLock and ClockBoost circuitry is locked to the incoming clock and generates an internal clock, LOCK is driven high. LOCK remains high if a periodic clock stops clocking. The LOCK function is optional; if the LOCK output is not used, this pin is a user I/O pin.
- (10) This pin is the active high enable pin for all of the PLL circuits in the device. When de-asserted, all PLLs are reset to their default, unlocked state and will stop clocking. Once re-asserted, the PLLs will lock again and start clocking. If this pin function is not needed, the pin should be connected to VCCINT.
- (11) The user I/O pin count includes dedicated inputs and dedicated clock inputs. It does not include the dedicated clock feedback and output pins.

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