Dedicated Pin	**144-Pin TQFP**	**208-Pin PQFP** (1)	**256-Pin BGA**	**256-Pin FineLine BGA**
INPUT/GCLK1	125	184	L1	D9
INPUT/GCLRn	127	182	K2	E8
INPUT/OE1	126	183	K1	E9
INPUT/OE2/GCLK2	128	181	K3	D8
TDI (2)	4	176	A2	D4
TMS (2)	20	127	B12	J6
TCK (2)	89	30	V12	J11
TDO (2)	104	189	Y2	D13
GNDINT	52, 57, 124, 129	75, 82, 180, 185	J20, K4, K18, L2, L17	A8, C9, G9, K8, P9
GNDIO	3, 13, 17, 33, 59, 64, 85, 105, 135	14, 32, 50, 51, 72, 94, 116, 134, 152, 158, 174, 200	A1, B2, B19, B20, C3, C18, D4, D17, U4, U17, V3, V18, V19, W2, W19, Y1, Y20	A3, B10, C2, D14, F6, G10, H8, J9, K7, L11, M3, P6, P10, R2, R3, T1, T15
VCCINT	51, 58, 123, 130	74, 83, 179, 186	J1, J19, L4, M19, M20	B9, C8, G8, K9, P8
VCCIO	24, 50, 73, 76, 95, 115, 144	5, 23, 41, 63, 85, 105, 107, 125, 143, 165, 191, 207	C4, C17, D3, D5, D16, D18, E4, E17, T4, T17, U3, U5, U16, U18, V2, V4, V17	B3, B5, C14, E15, F11, G3, G7, G15, H9, J8, K10,L3, L6, M15, P14, T2, T3
No Connect (N.C.)	–	–	–	–
Total User I/O Pins (3)	120	176	212	212

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
A	1	134	173	H3	D7
A	2	–	–	–	–
A	3	–	–	–	–
A	4	–	–	–	–
A	5	–	–	H2	C7
A	6	–	–	–	–
A	7	–	–	–	–
A	8	–	–	–	–
A	9	–	175	H1	B7
A	10	–	–	–	–
A	11	133	176 (2)	J4	A7
A	12	–	–	–	–
A	13	–	–	–	–
A	14	132	177	J3	F8
A	15	–	–	–	–
A	16	131	178	J2	B8
B	17	–	169	G4	D6
B	18	–	–	–	–
B	19	–	–	–	–
B	20	–	–	–	–
B	21	138	170	F1	C6
B	22	–	–	–	–
B	23	–	–	–	–
B	24	–	–	–	–
B	25	137	171	G3	B6
B	26	–	–	–	–
B	27	136	172	G2	A6
B	28	–	–	–	–
B	29	–	–	–	–
B	30	–	–	G1	F7
B	31	–	–	–	–
B	32	–	–	H4	E7
C	33	142	163	F4	E4
C	34	–	–	–	–
C	35	–	–	–	–
C	36	–	–	–	–
C	37	141	164	E3	C5
C	38	–	–	–	–
C	39	–	–	–	–
C	40	–	–	–	–
C	41	140	166	E2	A5
C	42	–	–	–	–
C	43	–	167	F3	D5
C	44	–	–	–	–
C	45	–	–	–	–
C	46	139	168	E1	E5
C	47	–	–	–	–
C	48	–	–	F2	E6

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
D	49	2	–	B3	B2
D	50	–	–	–	–
D	51	–	–	–	–
D	52	–	–	–	–
D	53	1	–	C2	A2
D	54	–	–	–	–
D	55	–	–	–	–
D	56	–	–	–	–
D	57	–	159	B1	B4
D	58	–	–	–	–
D	59	–	160	C1	A4
D	60	–	–	–	–
D	61	–	–	–	–
D	62	–	161	D2	C4
D	63	–	–	–	–
D	64	143	162	D1	C3
E	65	–	–	B5	E3
E	66	–	–	–	–
E	67	7	153	C5	C1
E	68	–	–	–	–
E	69	–	–	D6	B1
E	70	–	–	–	–
E	71	–	–	–	–
E	72	–	–	–	–
E	73	–	154	A4	A1
E	74	–	–	–	–
E	75	6	155	B4	D2
E	76	–	–	–	–
E	77	–	–	–	–
E	78	5	156	A3	D3
E	79	–	–	–	–
E	80	4 (2)	157	A2 (2)	D4 (2)
F	81	–	147	B7	F2
F	82	–	–	–	–
F	83	–	148	C7	F3
F	84	–	–	–	–
F	85	11	149	A6	F1
F	86	–	–	–	–
F	87	–	–	–	–
F	88	–	–	–	–
F	89	–	–	D7	F4
F	90	–	–	–	–
F	91	10	150	B6	E1
F	92	–	–	–	–
F	93	–	–	–	–
F	94	9	151	A5	D1
F	95	–	–	–	–
F	96	8	–	C6	E2

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
G	97	–	–	C9	H6
G	98	–	–	–	–
G	99	15	141	D9	G5
G	100	–	–	–	–
G	101	14	142	A8	G4
G	102	–	–	–	–
G	103	–	–	–	–
G	104	–	–	–	–
G	105	–	144	B8	G2
G	106	–	–	–	–
G	107	–	145	C8	G1
G	108	–	–	–	–
G	109	–	–	–	–
G	110	12	146	D8	G6
G	111	–	–	–	–
G	112	–	–	A7	F5
H	113	19	135	A11	J1
H	114	–	–	–	–
H	115	–	136	A10	H7
H	116	–	–	–	–
H	117	18	137	B10	H5
H	118	–	–	–	–
H	119	–	–	–	–
H	120	–	–	–	–
H	121	–	–	D10	H2
H	122	–	–	–	–
H	123	–	138	C10	H3
H	124	–	–	–	–
H	125	–	–	–	–
H	126	–	139	A9	H1
H	127	–	–	–	–
H	128	16	140	B9	H4
I	129	–	–	D12	K1
I	130	–	–	–	–
I	131	–	129	C12	J7
I	132	–	–	–	–
I	133	20 (2)	130	B12 (2)	J6 (2)
I	134	–	–	–	–
I	135	–	–	–	–
I	136	–	–	–	–
I	137	–	131	A12	J5
I	138	–	–	–	–
I	139	–	–	D11	J4
I	140	–	–	–	–
I	141	–	–		–
I	142	–	132	C11	J3
I	143	–	–	–	–
I	144	–	133	B11	J2

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
J	145	–	122	C14	L2
J	146	–	–	–	–
J	147	–	–	B14	L1
J	148	–	–	–	–
J	149	26	123	A14	K6
J	150	–	–	–	–
J	151	–	–	–	–
J	152	–	–	–	–
J	153	25	124	D13	K5
J	154	–	–	–	–
J	155	23	126	C13	K4
J	156	–	–	–	–
J	157	–	–	–	–
J	158	22	127 (2)	B13	K3
J	159	–	–	–	–
J	160	21	128	A13	K2
K	161	29	115	B16	N4
K	162	–	–	–	–
K	163	–	117	C15	M2
K	164	–	–	–	–
K	165	–	118	A17	M1
K	166	–	–	–	–
K	167	–	–	–	–
K	168	–	–	–	–
K	169	28	119	B15	M4
K	170	–	–	–	–
K	171	–	–	D14	M5
K	172	–	–	–	–
K	173	–	–	–	–
K	174	–	120	A16	L5
K	175	–	–	–	–
K	176	27	121	A15	L4
L	177	34	109	A20	R1
L	178	–	–	–	–
L	179	–	–	–	–
L	180	–	–	–	–
L	181	32	110	A19	P2
L	182	–	–	–	–
L	183	–	–	–	–
L	184	–	–	–	–
L	185	–	111	B17	N3
L	186	–	–	–	–
L	187	–	112	A18	N2
L	188	–	–	–	–
L	189	–	–	–	–
L	190	31	113	D15	P1
L	191	–	–	–	–
L	192	30	114	C16	N1

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
M	193	–	101	E18	P5
M	194	–	–	–	–
M	195	–	–	–	–
M	196	–	–	–	–
M	197	–	102	D20	N5
M	198	–	–	–	–
M	199	–	–	–	–
M	200	–	–	–	–
M	201	37	103	D19	T4
M	202	–	–	–	–
M	203	–	104	C20	R4
M	204	–	–	–	–
M	205	–	–	–	–
M	206	36	106	C19	P4
M	207	–	–	–	–
M	208	35	108	B18	P3
N	209	42	95	G17	R6
N	210	–	–	–	–
N	211	–	–	–	–
N	212	–	–	–	–
N	213	41	96	F19	T6
N	214	–	–	–	–
N	215	–	–	–	–
N	216	–	–	–	–
N	217	40	97	E20	N6
N	218	–	–	–	–
N	219	39	98	F18	M6
N	220	–	–	–	–
N	221	–	–	–	–
N	222	–	99	E19	R5
N	223	–	–	–	–
N	224	38	100	F17	T5
O	225	47	88	H19	R7
O	226	–	–	–	–
O	227	46	89	H18	P7
O	228	–	–	–	–
O	229	45	90	H17	T7
O	230	–	–	–	–
O	231	–	–	–	–
O	232	–	–	–	–
O	233	–	91	G20	L8
O	234	–	–	–	–
O	235	44	92	G19	N7
O	236	–	–	–	–
O	237	–	–	–	–
O	238	–	–	G18	M7
O	239	–	–	–	–
O	240	43	93	F20	L7

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
P	241	54	79	K20	M9
P	242	–	–	–	–
P	243	–	–	–	–
P	244	–	–	–	–
P	245	–	80	K19	L9
P	246	–	–	–	–
P	247	–	–	–	–
P	248	–	–	–	–
P	249	53	81	K17	R8
P	250	–	–	–	–
P	251	–	84	J18	T8
P	252	–	–	–	–
P	253	–	–	–	–
P	254	49	86	J17	N8
P	255	–	–	–	–
P	256	48	87	H20	M8
Q	257	55	78	L20	N9
Q	258	–	–	–	–
Q	259	–	–	–	–
Q	260	–	–	–	–
Q	261	–	77	L19	T9
Q	262	–	–	–	–
Q	263	–	–	–	–
Q	264	–	–	–	–
Q	265	56	76	L18	R9
Q	266	–	–	–	–
Q	267	–	73	M18	L10
Q	268	–	–	–	–
Q	269	–	–	–	–
Q	270	60	71	M17	M10
Q	271	–	–	–	–
Q	272	61	70	N20	N10
R	273	62	69	N19	R10
R	274	–	–	–	–
R	275	63	68	N18	T10
R	276	–	–	–	–
R	277	–	67	N17	M11
R	278	–	–	–	–
R	279	–	–	–	–
R	280	–	–	–	–
R	281	–	66	P20	N11
R	282	–	–	–	–
R	283	65	65	P19	P11
R	284	–	–	–	–
R	285	–	–	–	–
R	286	–	–	P18	R11
R	287	–	–	–	–
R	288	–	64	R20	T11

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
S	289	66	62	P17	K11
S	290	–	–	–	–
S	291	–	–	–	–
S	292	–	–	–	–
S	293	67	61	R19	M12
S	294	–	–	–	–
S	295	–	–	–	–
S	296	–	–	–	–
S	297	68	60	T20	N12
S	298	–	–	–	–
S	299	69	59	R18	T12
S	300	–	–	–	–
S	301	–	–	–	–
S	302	–	58	T19	R12
S	303	–	–	–	–
S	304	70	57	T18	T13
T	305	–	56	R17	P12
T	306	–	–	–	–
T	307	–	–	–	–
T	308	–	–	–	–
T	309	–	55	U20	T14
T	310	–	–	–	–
T	311	–	–	–	–
T	312	–	–	–	–
T	313	71	54	U19	P13
T	314	–	–	–	–
T	315	72	53	V20	R13
T	316	–	–	–	–
T	317	–	–	–	–
T	318	–	52	W20	R14
T	319	–	–	–	–
T	320	74	49	W18	R15
U	321	75	48	Y19	P15
U	322	–	–	–	–
U	323	–	–	–	–
U	324	–	–	–	–
U	325	–	47	Y18	N15
U	326	–	–	–	–
U	327	–	–	–	–
U	328	–	–	–	–
U	329	–	46	W17	T16
U	330	–	–	–	–
U	331	–	45	Y17	R16
U	332	–	–	–	–
U	333	–	–	–	–
U	334	77	44	U15	P16
U	335	–	–	–	–
U	336	78	43	V16	N14

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
V	337	79	42	W16	N16
V	338	–	–	–	–
V	339	80	40	V15	M14
V	340	–	–	–	–
V	341	–	39	Y16	N13
V	342	–	–	–	–
V	343	–	–	–	–
V	344	–	–	–	–
V	345	81	38	W15	M16
V	346	–	–	–	–
V	347	–	–	U14	M13
V	348	–	–	–	–
V	349	–	–	–	–
V	350	–	37	Y15	L14
V	351	–	–	–	–
V	352	–	36	V14	L15
W	353	82	35	W14	L16
W	354	–	–	–	–
W	355	–	–	Y14	L13
W	356	–	–	–	–
W	357	83	34	U13	L12
W	358	–	–	–	–
W	359	–	–	–	–
W	360	–	–	–	–
W	361	84	33	V13	K12
W	362	–	–	–	–
W	363	86	31	W13	K14
W	364	–	–	–	–
W	365	–	–	–	–
W	366	87	30 (2)	Y13	K15
W	367	–	–	–	–
W	368	88	29	U12	K16
X	369	89 (2)	–	V12 (2)	J11 (2)
X	370	–	–	–	–
X	371	–	28	W12	J12
X	372	–	–	–	–
X	373	–	27	Y12	J13
X	374	–	–	–	–
X	375	–	–	–	–
X	376	–	–	–	–
X	377	–	26	V11	J14
X	378	–	–	–	–
X	379	–	–	U11	J15
X	380	–	–	–	–
X	381	–	–	–	–
X	382	–	25	W11	K13
X	383	–	–	–	–
X	384	90	24	Y11	J16

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
Y	385	91	22	Y10	H10
Y	386	–	–	–	–
Y	387	–	21	W10	H11
Y	388	–	–		–
Y	389	92	20	V10	H12
Y	390	–	–	–	–
Y	391	–	–	–	–
Y	392	–	–	–	–
Y	393	–	–	U10	H15
Y	394	–	–	–	–
Y	395	–	19	Y9	H16
Y	396	–	–	–	–
Y	397	–	–	–	–
Y	398	–	18	W9	H14
Y	399	–	–	–	–
Y	400	93	17	V9	H13
Z	401	–	–	U9	G12
Z	402	–	–	–	–
Z	403	–	16	Y8	G13
Z	404	–	–	–	–
Z	405	94	15	W8	G14
Z	406	–	–	–	–
Z	407	–	–	–	–
Z	408	–	–	–	–
Z	409	96	13	V8	G16
Z	410	–	–	–	–
Z	411	–	12	U8	G11
Z	412	–	–	–	–
Z	413	–	–	–	–
Z	414	97	11	Y7	F12
Z	415	–	–	–	–
Z	416	–	–	W7	F13
AA	417	–	10	V7	F14
AA	418	–	–	–	–
AA	419	–	9	Y6	F15
AA	420	–	–	–	–
AA	421	98	8	U7	F16
AA	422	–	–	–	–
AA	423	–	–	–	–
AA	424	–	–	–	–
AA	425	–	–	W6	E12
AA	426	–	–	–	–
AA	427	99	7	Y5	E13
AA	428	–	–	–	–
AA	429	–	–	–	–
AA	430	100	6	V6	E14
AA	431	–	–	–	–
AA	432	101	–	W5	E16

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
BB	433	–	–	V5	D16
BB	434	–	–	–	–
BB	435	102	4	U6	C16
BB	436	–	–	–	–
BB	437	–	–	Y4	B16
BB	438	–	–	–	–
BB	439	–	–	–	–
BB	440	–	–	–	–
BB	441	–	3	W4	A16
BB	442	–	–	–	–
BB	443	103	2	Y3	D15
BB	444	–	–	–	–
BB	445	–	–	–	–
BB	446	104 (2)	1	Y2 (2)	D13 (2)
BB	447	–	–	–	–
BB	448	106	208	W3	C15
CC	449	–	–	W1	B15
CC	450	–	–	–	–
CC	451	–	–	–	–
CC	452	–	–	–	–
CC	453	107	–	V1	A15
CC	454	–	–	–	–
CC	455	–	–	–	–
CC	456	–	–	–	–
CC	457	108	206	U2	B14
CC	458	–	–	–	–
CC	459	–	205	U1	A14
CC	460	–	–	–	–
CC	461	–	–	–	–
CC	462	–	204	T3	B13
CC	463	–	–	–	–
CC	464	109	203	R4	A13
DD	465	–	202	T2	C13
DD	466	–	–	–	–
DD	467	–	–	–	–
DD	468	–	–	–	–
DD	469	110	201	R3	D12
DD	470	–	–	–	–
DD	471	–	–	–	–
DD	472	–	–	–	–
DD	473	111	199	T1	C12
DD	474	–	–	–	–
DD	475	–	198	R2	B12
DD	476	–	–	–	–
DD	477	–	–	–	–
DD	478	112	197	P4	A12
DD	479	–	–	–	–
DD	480	–	–	R1	E11

LAB	MC	144-Pin TQFP	208-Pin PQFP (1)	256-Pin BGA	256-Pin FineLine BGA
EE	481	–	196	P3	D11
EE	482	–	–	–	–
EE	483	–	–	–	–
EE	484	–	–	–	–
EE	485	113	195	P2	C11
EE	486	–	–	–	–
EE	487	–	–	–	–
EE	488	–	–	–	–
EE	489	114	194	P1	A11
EE	490	–	–	–	–
EE	491	116	193	N4	B11
EE	492	–	–	–	–
EE	493	–	–	–	–
EE	494	117	–	N3	F10
EE	495	–	–	–	–
EE	496	–	–	N2	E10
FF	497	118	192	N1	D10
FF	498	–	–	–	–
FF	499	–	–	–	–
FF	500	–	–	–	–
FF	501	–	–	M4	C10
FF	502	–	–	–	–
FF	503	–	–	–	–
FF	504	–	–	–	–
FF	505	119	190	M3	A10
FF	506	–	–	–	–
FF	507	120	189 (2)	M2	J10
FF	508	–	–	–	–
FF	509	–	–	–	–
FF	510	121	188	M1	F9
FF	511	–	–	–	–
FF	512	122	187	L3	A9

Notes:

(1) EPM7512AE devices in the 208-pin PQFP package support vertical migration from EPM7256E, EPM7256S, and EPM7256A devices. EPM7512AE devices contain additional I/O pins which are no connects on the EPM7256E, EPM7256S, and EPM7256A devices. To support these additional I/O pins, EPM7512AE devices have two additional VCCIO (pins 105 and 207) and GNDIO (pins 51 and 158) pins that are no-connect pins on EPM7256E, EPM7256S, and EPM7256A devices. To achieve vertical migration between EPM7256A and EPM7512AE devices, tie the no-connect pins 105 and 207 to VCCIO and tie pins 51 and 158 to GNDIO on EPM7256A devices. On EPM7256E and EPM7256S devices, these no-connect pins must not be tied to VCCIO or GNDIO. EPM7512AE devices have identical pin-

(2) This pin may function as either a JTAG port or a user I/O pin. If the device is configured to use the JTAG ports for in-system programming, this pin is not available as a user I/O pin.

(3) The user I/O pin count includes dedicated input pins and all I/O pins.