

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
–	48	I/O	–	–	M11



I/O & VREF Bank	Pad Number Orientation	Pin/Pad Function	652-Pin BGA	672-Pin FineLine BGA	1,020-Pin FineLine BGA
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_CK4 (2)	R4	P10	P9
–	110	GND_CK4 (2)	R3	R10	T9
–	111	GND_CK4 (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, CLK_FB2n (4)	T5	T8	J3
–	117	CLK_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_CK2 (2)	W2	P11	V9
–	129	GND_CK2 (2)	W2	P11	V9
–	130	GNDINT	GND	GND	GND
–	131	VCCINT	VCCINT	VCCINT	VCCINT
–	132	VCC_CK2 (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	CLK_OUT2p (8)	Y3	T7	AH3
7	137	I/O, CLK_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



I/O & VREF Bank	Pad Number Orientation	Pin/Pad Function	652-Pin BGA	672-Pin FineLine BGA	1,020-Pin FineLine BGA
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



I/O & VREF Bank	Pad Number Orientation	Pin/Pad Function	652-Pin BGA	672-Pin FineLine BGA	1,020-Pin FineLine BGA
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



I/O & VREF Bank	Pad Number Orientation	Pin/Pad Function	652-Pin BGA	672-Pin FineLine BGA	1,020-Pin FineLine BGA
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_CK1K1 (2)	AA35	AF18	W24
–	583	GND_CK1K1 (2)	Y30	AE18	V24
–	584	GND_CK1K1 (2)	Y30	AE18	V24
–	585	GNDIO	GND	GND	GND
4	586	I/O, CLK1K_FB1n (4)	Y31	AF20	AM28
4	587	CLK1K_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	CLK1K_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	CLK1K_OUT1p (8)	U31	AE23	AM29
3	603	I/O, CLK1K_OUT1n (4)	T35	AF23	AL29
–	604	VCC_CK1K3 (2)	T34	AC26	M24
–	605	VCCIO	VCCIO3	VCCIO3	VCCIO3
–	606	GND_CK1K3 (2)	V35	N25	P23
–	607	GND_CK1K3 (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	–	–	–	–



Pin Name	652-Pin BGA	672-Pin FineLine BGA	1,020-Pin FineLine BGA
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



**EP20K1000E Configuration and Power Pins**  
ver. 1.0

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





Copyright © 1995, 1996, 1997, 1998, 1999 Altera Corporation, 101 Innovation Drive,  
San Jose, CA 95134, USA, all rights reserved.

By accessing this information, you agree to be bound by the terms of Altera's  
Legal Notice.

