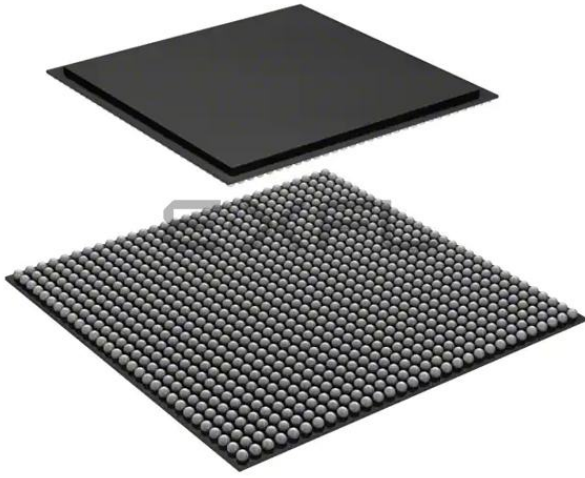




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Understanding [Embedded - FPGAs \(Field Programmable Gate Array\)](#)

Embedded - FPGAs, or Field Programmable Gate Arrays, are advanced integrated circuits that offer unparalleled flexibility and performance for digital systems. Unlike traditional fixed-function logic devices, FPGAs can be programmed and reprogrammed to execute a wide array of logical operations, enabling customized functionality tailored to specific applications. This reprogrammability allows developers to iterate designs quickly and implement complex functions without the need for custom hardware.

Applications of Embedded - FPGAs

The versatility of Embedded - FPGAs makes them indispensable in numerous fields. In telecommunications.

Details

Product Status	Active
Number of LABs/CLBs	8500
Number of Logic Elements/Cells	68000
Total RAM Bits	1056768
Number of I/O	583
Number of Gates	-
Voltage - Supply	1.14V ~ 1.26V
Mounting Type	Surface Mount
Operating Temperature	0°C ~ 85°C (TJ)
Package / Case	900-BBGA
Supplier Device Package	900-FPBGA (31x31)
Purchase URL	https://www.e-xfl.com/product-detail/lattice-semiconductor/lfe2-70se-7fn900c

LFE2-20E/SE Logic Signal Connections: 256 fpBGA (Cont.)

LFE2-20E/SE					
Ball Number	Ball Number	Ball/Pad Function	Bank	Dual Function	Differential
J13	J13	PR28B	3	RLM0_GDLLC_FB_A/RDQ25	C
J12	J12	PR28A	3	RLM0_GDLLT_FB_A/RDQ25	T
H12	H12	PR27B	3	RLM0_GDLLC_IN_A**/RDQ25	C (LVDS)*
GND	GND	GNDIO3	-		
H13	H13	PR27A	3	RLM0_GDLLT_IN_A**/RDQ25	T (LVDS)*
H15	H15	PR22B	3	VREF2_3/RDQ25	C
VCCIO	VCCIO	VCCIO3	3		
H16	H16	PR22A	3	VREF1_3/RDQ25	T
H11	H11	PR21B	3	PCLKC3_0/RDQ25	C (LVDS)*
J11	J11	PR21A	3	PCLKT3_0/RDQ25	T (LVDS)*
G16	G16	PR19B	2	PCLKC2_0/RDQ16	C
GND	GND	GNDIO2	-		
G15	G15	PR19A	2	PCLKT2_0/RDQ16	T
F15	F15	PR17B	2	RDQ16	C
G11	G11	PR18B	2	RDQ16	C (LVDS)*
F14	F14	PR17A	2	RDQ16	T
VCCIO	VCCIO	VCCIO2	2		
F12	F12	PR18A	2	RDQ16	T (LVDS)*
G14	G14	PR16B	2	RDQ16	C (LVDS)*
G13	G13	PR16A	2	RDQS16	T (LVDS)*
GND	GND	GNDIO2	-		
F16	F16	PR14B	2	RDQ16	C (LVDS)*
F9	F9	PR15B	2	RDQ16	C
E16	E16	PR14A	2	RDQ16	T (LVDS)*
F10	F10	PR15A	2	RDQ16	T
VCCIO	VCCIO	VCCIO2	2		
D16	D16	PR13B	2	RDQ16	C
D15	D15	PR13A	2	RDQ16	T
C15	C15	PR6B	2	RDQ8	C (LVDS)*
C16	C16	PR7B	2	RDQ8	C
GND	GND	GNDIO2	-		
D14	D14	PR6A	2	RDQ8	T (LVDS)*
B16	B16	PR7A	2	RDQ8	T
F13	F13	PR2B	2	VREF2_2	C (LVDS)*
VCCIO	VCCIO	VCCIO2	2		
E13	E13	PR2A	2	VREF1_2	T (LVDS)*
F11	F11	PT64B	1	VREF2_1	C
E11	E11	PT64A	1	VREF1_1	T
GND	GND	GNDIO1	-		
A15	A15	PT63B	1		C
E12	E12	PT62B	1		C
B15	B15	PT63A	1		T

LFE2-12E/SE and LFE2-20E/SE Logic Signal Connections: 484 fpBGA
(Cont.)

LFE2-12E/12SE					LFE2-20E/20SE			
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential
AB7	PB13B	5	BDQ15	C	PB22B	5	BDQ24	C
Y8	PB16A	5	BDQ15	T	PB25A	5	BDQ24	T
GNDIO	GNDIO5	-			GNDIO	-		
W9	PB15A	5	BDQS15	T	PB24A	5	BDQS24	T
AA8	PB16B	5	BDQ15	C	PB25B	5	BDQ24	C
V9	PB15B	5	BDQ15	C	PB24B	5	BDQ24	C
AB8	PB18A	5	BDQ15	T	PB27A	5	BDQ24	T
VCCIO	VCCIO5	5			VCCIO5	5		
W10	PB17A	5	BDQ15	T	PB26A	5	BDQ24	T
AA9	PB18B	5	BDQ15	C	PB27B	5	BDQ24	C
V10	PB17B	5	BDQ15	C	PB26B	5	BDQ24	C
GNDIO	GNDIO5	-			GNDIO	-		
Y10	PB21A	5	BDQ24	T	PB30A	5	BDQ33	T
AB9	PB20A	5	BDQ24	T	PB29A	5	BDQ33	T
AA10	PB21B	5	BDQ24	C	PB30B	5	BDQ33	C
AB10	PB20B	5	BDQ24	C	PB29B	5	BDQ33	C
AB11	PB23A	5	BDQ24	T	PB32A	5	BDQ33	T
U10	PB22A	5	BDQ24	T	PB31A	5	BDQ33	T
VCCIO	VCCIO5	5			VCCIO5	5		
AA11	PB23B	5	BDQ24	C	PB32B	5	BDQ33	C
U11	PB22B	5	BDQ24	C	PB31B	5	BDQ33	C
GNDIO	GNDIO5	-			GNDIO5	-		
AB12	PB25A	5	BDQ24	T	PB34A	5	BDQ33	T
Y11	PB24A	5	BDQS24	T	PB33A	5	BDQS33	T
AA12	PB25B	5	BDQ24	C	PB34B	5	BDQ33	C
W11	PB24B	5	BDQ24	C	PB33B	5	BDQ33	C
AB13	PB26A	5	PCLKT5_0/BDQ24	T	PB35A	5	PCLKT5_0/BDQ33	T
VCCIO	VCCIO5	5			VCCIO5	5		
AB14	PB26B	5	PCLKC5_0/BDQ24	C	PB35B	5	PCLKC5_0/BDQ33	C
GNDIO	GNDIO5	-			GNDIO5	-		
Y12	PB32A	4	BDQ33	T	PB41A	4	BDQ42	T
W12	PB32B	4	BDQ33	C	PB41B	4	BDQ42	C
VCCIO	VCCIO4	4			VCCIO4	4		
U12	PB31A	4	PCLKT4_0/BDQ33	T	PB40A	4	PCLKT4_0/BDQ42	T
V12	PB31B	4	PCLKC4_0/BDQ33	C	PB40B	4	PCLKC4_0/BDQ42	C
U13	PB34A	4	BDQ33	T	PB43A	4	BDQ42	T
GNDIO	GNDIO4	-			GNDIO4	-		
AA13	PB33A	4	BDQS33	T	PB42A	4	BDQS42	T
U14	PB34B	4	BDQ33	C	PB43B	4	BDQ42	C
Y13	PB33B	4	BDQ33	C	PB42B	4	BDQ42	C
AB16	PB36A	4	BDQ33	T	PB45A	4	BDQ42	T
VCCIO	VCCIO4	4			VCCIO4	4		
AB15	PB35A	4	BDQ33	T	PB44A	4	BDQ42	T
AB17	PB36B	4	BDQ33	C	PB45B	4	BDQ42	C

LFE2-12E/SE and LFE2-20E/SE Logic Signal Connections: 484 fpBGA (Cont.)

LFE2-12E/12SE					LFE2-20E/20SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential	
C2	PT3A	0		T	PT3A	0		T	
J10	VCC	-			VCC	-			
J11	VCC	-			VCC	-			
J12	VCC	-			VCC	-			
J13	VCC	-			VCC	-			
K14	VCC	-			VCC	-			
K9	VCC	-			VCC	-			
L14	VCC	-			VCC	-			
L9	VCC	-			VCC	-			
M14	VCC	-			VCC	-			
M9	VCC	-			VCC	-			
N14	VCC	-			VCC	-			
N9	VCC	-			VCC	-			
P10	VCC	-			VCC	-			
P11	VCC	-			VCC	-			
P12	VCC	-			VCC	-			
P13	VCC	-			VCC	-			
G10	VCCIO0	0			VCCIO0	0			
G9	VCCIO0	0			VCCIO0	0			
H9	VCCIO0	0			VCCIO0	0			
H8	VCCIO0	0			VCCIO0	0			
G11	VCCIO1	1			VCCIO1	1			
G12	VCCIO1	1			VCCIO1	1			
G13	VCCIO1	1			VCCIO1	1			
G14	VCCIO1	1			VCCIO1	1			
H14	VCCIO2	2			VCCIO2	2			
H15	VCCIO2	2			VCCIO2	2			
J15	VCCIO2	2			VCCIO2	2			
K16	VCCIO2	2			VCCIO2	2			
L16	VCCIO3	3			VCCIO3	3			
M16	VCCIO3	3			VCCIO3	3			
N16	VCCIO3	3			VCCIO3	3			
P16	VCCIO3	3			VCCIO3	3			
R14	VCCIO4	4			VCCIO4	4			
T12	VCCIO4	4			VCCIO4	4			
T13	VCCIO4	4			VCCIO4	4			
T14	VCCIO4	4			VCCIO4	4			
R9	VCCIO5	5			VCCIO5	5			
T10	VCCIO5	5			VCCIO5	5			
T11	VCCIO5	5			VCCIO5	5			
T9	VCCIO5	5			VCCIO5	5			
N7	VCCIO6	6			VCCIO6	6			
P7	VCCIO6	6			VCCIO6	6			
P8	VCCIO6	6			VCCIO6	6			

LFE2-12E/SE and LFE2-20E/SE Logic Signal Connections: 484 fpBGA (Cont.)

LFE2-12E/12SE					LFE2-20E/20SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential	
J9	GND	-			GND	-			
K10	GND	-			GND	-			
K11	GND	-			GND	-			
K12	GND	-			GND	-			
K13	GND	-			GND	-			
K15	GND	-			GND	-			
K8	GND	-			GND	-			
L10	GND	-			GND	-			
L11	GND	-			GND	-			
L12	GND	-			GND	-			
L13	GND	-			GND	-			
L15	GND	-			GND	-			
L8	GND	-			GND	-			
M10	GND	-			GND	-			
M11	GND	-			GND	-			
M12	GND	-			GND	-			
M13	GND	-			GND	-			
M15	GND	-			GND	-			
M8	GND	-			GND	-			
N10	GND	-			GND	-			
N11	GND	-			GND	-			
N12	GND	-			GND	-			
N13	GND	-			GND	-			
N15	GND	-			GND	-			
N8	GND	-			GND	-			
P14	GND	-			GND	-			
P20	GND	-			GND	-			
P3	GND	-			GND	-			
P9	GND	-			GND	-			
R10	GND	-			GND	-			
R11	GND	-			GND	-			
R12	GND	-			GND	-			
R13	GND	-			GND	-			
U17	GND	-			GND	-			
U6	GND	-			GND	-			
W2	GND	-			GND	-			
W21	GND	-			GND	-			
Y14	GND	-			GND	-			
Y9	GND	-			GND	-			
H6	NC	-			NC	-			
J6	NC	-			NC	-			
H3	NC	-			NC	-			
H2	NC	-			NC	-			
H17	NC	-			NC	-			

LFE2-12E/SE and LFE2-20E/SE Logic Signal Connections: 484 fpBGA (Cont.)

LFE2-12E/12SE					LFE2-20E/20SE			
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential
H16	NC	-			NC	-		
H20	NC	-			NC	-		
H18	NC	-			NC	-		
K6	NC	-			NC	-		
J16	NC	-			NC	-		
N18	VCC	-			VCC	-		
N6	VCC	-			VCC	-		

* Supports true LVDS. Other differential signals must be emulated with external resistors.

** These dedicated input pins can be used for GPLLs or GDLLs within the respective quadrant.

Note: VCCIO and GND pads are used to determine the average DC current drawn by I/Os between GND/VCCIO connections, or between the last GND/VCCIO in an I/O bank and the end of an I/O bank. The substrate pads listed in the Pin Table do not necessarily have a one to one connection with a package ball or pin.

LFE2-20E/SE and LFE2-35E/SE Logic Signal Connections: 672 fpBGA (Cont.)

LFE2-20E/20SE					LFE2-35E/35SE			
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential
G24	PR6B	2	RDQ8	C (LVDS)*	PR12B	2	RDQ14	C (LVDS)*
G23	PR6A	2	RDQ8	T (LVDS)*	PR12A	2	RDQ14	T (LVDS)*
VCCIO	VCCIO2	2			VCCIO2	2		
K19	PR5B	2	RDQ8	C	PR11B	2	RDQ14	C
J19	PR5A	2	RDQ8	T	PR11A	2	RDQ14	T
D26	PR4B	2	RDQ8	C (LVDS)*	PR10B	2	RDQ14	C (LVDS)*
C26	PR4A	2	RDQ8	T (LVDS)*	PR10A	2	RDQ14	T (LVDS)*
F22	NC	-			PR9B	2	RDQ6	C
E24	NC	-			PR9A	2	RDQ6	T
GND	GNDIO2	-			GNDIO2	-		
D25	NC	-			PR8B	2	RDQ6	C (LVDS)*
C25	NC	-			PR8A	2	RDQ6	T (LVDS)*
D24	NC	-			PR7B	2	RDQ6	C
B25	NC	-			PR7A	2	RDQ6	T
VCCIO	VCCIO2	2			VCCIO2	2		
H21	NC	-			PR6B	2	RDQ6	C (LVDS)*
G22	NC	-			PR6A	2	RDQS6	T (LVDS)*
B24	NC	-			PR5B	2	RDQ6	C
GND	GNDIO2	-			GNDIO2	-		
C24	NC	-			PR5A	2	RDQ6	T
D23	NC	-			PR4B	2	RDQ6	C (LVDS)*
C23	NC	-			PR4A	2	RDQ6	T (LVDS)*
G21	PR3B	2		C	PR3B	2	RDQ6	C
VCCIO	VCCIO2	2			VCCIO2	2		
H20	PR3A	2		T	PR3A	2	RDQ6	T
GND	GNDIO2	-			GNDIO2	-		
E22	PR2B	2	VREF2_2	C (LVDS)*	PR2B	2	VREF2_2/RDQ6	C (LVDS)*
F21	PR2A	2	VREF1_2	T (LVDS)*	PR2A	2	VREF1_2/RDQ6	T (LVDS)*
E23	PT64B	1	VREF2_1	C	PT73B	1	VREF2_1	C
GND	GNDIO1	-			GNDIO1	-		
D22	PT64A	1	VREF1_1	T	PT73A	1	VREF1_1	T
G20	PT63B	1		C	PT72B	1		C
J18	PT63A	1		T	PT72A	1		T
F20	PT62B	1		C	PT71B	1		C
VCCIO	VCCIO1	1			VCCIO1	1		
H19	PT62A	1		T	PT71A	1		T
A24	PT61B	1		C	PT70B	1		C
A23	PT61A	1		T	PT70A	1		T
E21	PT60B	1		C	PT69B	1		C
F19	PT60A	1		T	PT69A	1		T
C22	PT59B	1		C	PT68B	1		C
GND	GNDIO1	-			GNDIO1	-		
E20	PT59A	1		T	PT68A	1		T
B22	PT58B	1		C	PT67B	1		C
VCCIO	VCCIO1	1			VCCIO1	1		
B23	PT58A	1		T	PT67A	1		T

LFE2-50E/SE and LFE2-70E/SE Logic Signal Connections: 672 fpBGA (Cont.)

LFE2-50E/SE					LFE2-70E/SE			
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential
A7	PT35B	0		C	PT44B	0		C
B7	PT35A	0		T	PT44A	0		T
VCCIO	VCCIO0	0			VCCIO0	0		
F12	PT34B	0		C	PT43B	0		C
D10	PT34A	0		T	PT43A	0		T
H11	PT33B	0		C	PT42B	0		C
G11	PT33A	0		T	PT42A	0		T
GND	GNDIO0	-			GNDIO0	-		
A6	PT32B	0		C	PT41B	0		C
B6	PT32A	0		T	PT41A	0		T
D8	PT31B	0		C	PT40B	0		C
C8	PT31A	0		T	PT40A	0		T
VCCIO	VCCIO0	0			VCCIO0	0		
F11	PT30B	0		C	PT39B	0		C
E10	PT30A	0		T	PT39A	0		T
E9	PT29B	0		C	PT38B	0		C
D9	PT29A	0		T	PT38A	0		T
G10	PT28B	0		C	PT37B	0		C
GND	GNDIO0	-			GNDIO0	-		
H10	PT28A	0		T	PT37A	0		T
A5	PT27B	0		C	PT36B	0		C
B5	PT27A	0		T	PT36A	0		T
C7	PT26B	0		C	PT35B	0		C
VCCIO	VCCIO0	0			VCCIO0	0		
D7	PT26A	0		T	PT35A	0		T
E8	PT25B	0		C	PT34B	0		C
F10	PT25A	0		T	PT34A	0		T
F8	PT24B	0		C	PT33B	0		C
H9	PT24A	0		T	PT33A	0		T
C5	PT23B	0		C	PT32B	0		C
GND	GNDIO0	-			GNDIO0	-		
D5	PT23A	0		T	PT32A	0		T
B4	PT22B	0			PT31B	0		
VCCIO	VCCIO0	0			VCCIO0	0		
GND	GNDIO0	-			GNDIO0	-		
VCCIO	VCCIO0	0			VCCIO0	0		
GND	GNDIO0	-			GNDIO0	-		
VCCIO	VCCIO0	0			VCCIO0	0		
C4	PT10B	0		C	PT10B	0		C
GND	GNDIO0	-			GNDIO0	-		
C3	PT10A	0		T	PT10A	0		T
A4	PT9B	0		C	PT9B	0		C
A3	PT9A	0		T	PT9A	0		T
B3	PT8B	0		C	PT8B	0		C
VCCIO	VCCIO0	0			VCCIO0	0		
B2	PT8A	0		T	PT8A	0		T

LFE2-70E/SE Logic Signal Connections: 900 fpBGA

LFE2-70E/SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential
VCCIO	VCCIO7	7		
F4	PL2A	7	VREF2_7	T (LVDS)*
F3	PL2B	7	VREF1_7	C (LVDS)*
H4	PL3A	7		T
G5	PL3B	7		C
GND	GNDIO7	-		
D2	PL4A	7		T (LVDS)*
D1	PL4B	7		C (LVDS)*
E2	PL5A	7		T
VCCIO	VCCIO7	7		
E1	PL5B	7		C
GND	GNDIO7	-		
VCCIO	VCCIO7	7		
F1	PL14A	7	LUM1_SPLLT_IN_A/LDQ12	T (LVDS)*
F2	PL14B	7	LUM1_SPLLC_IN_A/LDQ12	C (LVDS)*
G1	PL15A	7	LUM1_SPLLT_FB_A/LDQ12	T
G2	PL15B	7	LUM1_SPLLC_FB_A/LDQ12	C
GND	GNDIO7	-		
H8	PL18A	7	LDQ21	T
H6	PL18B	7	LDQ21	C
VCCIO	VCCIO7	7		
G4	PL19A	7	LDQ21	T (LVDS)*
G3	PL19B	7	LDQ21	C (LVDS)*
H7	PL20A	7	LDQ21	T
H5	PL20B	7	LDQ21	C
GND	GNDIO7	-		
H2	PL21A	7	LDQS21	T (LVDS)*
H1	PL21B	7	LDQ21	C (LVDS)*
J6	PL22A	7	LDQ21	T
VCCIO	VCCIO7	7		
J8	PL22B	7	LDQ21	C
J2	PL23A	7	LDQ21	T (LVDS)*
J1	PL23B	7	LDQ21	C (LVDS)*
J5	PL24A	7	LDQ21	T
GND	GNDIO7	-		
J7	PL24B	7	LDQ21	C
J4	PL25A	7	LDQ29	T (LVDS)*
J3	PL25B	7	LDQ29	C (LVDS)*
K6	PL26A	7	LDQ29	T
K8	PL26B	7	LDQ29	C
VCCIO	VCCIO7	7		
K2	PL27A	7	LDQ29	T (LVDS)*

LFE2M20E/SE and LFE2M35E/SE Logic Signal Connections: 484 fpBGA (Cont.)

LFE2M20E/SE					LFE2M35E/SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential	
L4	PL24B	7	LDQ22	C (LVDS)*	PL34B	7	LDQ32	C (LVDS)*	
M1	PL25A	7	PCLKT7_0/LDQ22	T	PL35A	7	PCLKT7_0/LDQ32	T	
GNDIO	GNDIO7	-			GNDIO7	-			
M2	PL25B	7	PCLKC7_0/LDQ22	C	PL35B	7	PCLKC7_0/LDQ32	C	
M6	PL27A	6	PCLKT6_0	T (LVDS)*	PL37A	6	PCLKT6_0	T (LVDS)*	
M5	PL27B	6	PCLKC6_0	C (LVDS)*	PL37B	6	PCLKC6_0	C (LVDS)*	
M3	PL28A	6	VREF2_6	T	PL38A	6	VREF2_6	T	
M4	PL28B	6	VREF1_6	C	PL38B	6	VREF1_6	C	
VCCIO	VCCIO6	6			VCCIO6	6			
N7	PL31A	6	LLM1_SPLLT_IN_A	T (LVDS)*	PL41A	6	LLM2_SPLLT_IN_A	T (LVDS)*	
GNDIO	GNDIO6	-			GNDIO6	-			
N6	PL31B	6	LLM1_SPLLC_IN_A	C (LVDS)*	PL41B	6	LLM2_SPLLC_IN_A	C (LVDS)*	
N1	PL32A	6	LLM1_SPLLT_FB_A	T	PL42A	6	LLM2_SPLLT_FB_A	T	
N2	PL32B	6	LLM1_SPLLC_FB_A	C	PL42B	6	LLM2_SPLLC_FB_A	C	
VCCIO	VCCIO6	6			VCCIO6	6			
GNDIO	GNDIO6	-			GNDIO6	-			
P6	PL38A	6	LDQS38****	T (LVDS)*	PL48A	6	LDQS48****	T (LVDS)*	
N5	PL38B	6	LDQ38	C (LVDS)*	PL48B	6	LDQ48	C (LVDS)*	
P1	PL39A	6	LDQ38	T	PL49A	6	LDQ48	T	
VCCIO	VCCIO6	6			VCCIO6	6			
P2	PL39B	6	LDQ38	C	PL49B	6	LDQ48	C	
P3	PL40A	6	LDQ38	T (LVDS)*	PL50A	6	LDQ48	T (LVDS)*	
P4	PL40B	6	LDQ38	C (LVDS)*	PL50B	6	LDQ48	C (LVDS)*	
P5	PL41A	6	LDQ38	T	PL51A	6	LDQ48	T	
GNDIO	GNDIO6	-			GNDIO6	-			
P7	PL41B	6	LDQ38	C	PL51B	6	LDQ48	C	
R1	PL42A	6	LLM0_GPLLT_IN_A**	T (LVDS)*	PL57A	6	LLM0_GPLLT_IN_A**/LDQS57****	T (LVDS)*	
GNDIO	GNDIO6	-			GNDIO6	-			
R2	PL42B	6	LLM0_GPLLC_IN_A**	C (LVDS)*	PL57B	6	LLM0_GPLLC_IN_A**/LDQ57	C (LVDS)*	
R3	PL43A	6	LLM0_GPLLT_FB_A	T	PL58A	6	LLM0_GPLLT_FB_A/LDQ57	T	
R4	PL43B	6	LLM0_GPLLC_FB_A	C	PL58B	6	LLM0_GPLLC_FB_A/LDQ57	C	
VCCIO	VCCIO6	6			VCCIO6	6			
R6	PL44A	6	LLM0_GDLT_IN_A**	T (LVDS)*	PL59A	6	LLM0_GDLT_IN_A**/LDQ57	T (LVDS)*	
R5	PL44B	6	LLM0_GDLLC_IN_A**	C (LVDS)*	PL59B	6	LLM0_GDLLC_IN_A**/LDQ57	C (LVDS)*	
T1	PL45A	6	LLM0_GDLT_FB_A	T	PL60A	6	LLM0_GDLT_FB_A/LDQ57	T	
T2	PL45B	6	LLM0_GDLLC_FB_A	C	PL60B	6	LLM0_GDLLC_FB_A/LDQ57	C	
GNDIO	GNDIO6	-			GNDIO6	-			
R7	LLM0_PLLCAP	6			LLM0_PLLCAP	6			
T6	PL47A	6	LDQ51	T (LVDS)*	PL62A	6	LDQ66	T (LVDS)*	
T7	PL47B	6	LDQ51	C (LVDS)*	PL62B	6	LDQ66	C (LVDS)*	
U1	PL48A	6	LDQ51	T	PL63A	6	LDQ66	T	
U2	PL48B	6	LDQ51	C	PL63B	6	LDQ66	C	
VCCIO	VCCIO6	6			VCCIO6	6			
T3	PL49A	6	LDQ51	T (LVDS)*	PL64A	6	LDQ66	T (LVDS)*	
U3	PL49B	6	LDQ51	C (LVDS)*	PL64B	6	LDQ66	C (LVDS)*	
U6	PL50A	6	LDQ51	T	NC	-			
U5	PL50B	6	LDQ51	C	PL65B	6	LDQ66	C	
GNDIO	GNDIO6	-			GNDIO6	-			

LFE2M20E/SE and LFE2M35E/SE Logic Signal Connections: 484 fpBGA (Cont.)

LFE2M20E/SE					LFE2M35E/SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential	
G19	GND	-			GND	-			
G4	GND	-			GND	-			
H10	GND	-			GND	-			
H13	GND	-			GND	-			
J14	GND	-			GND	-			
J9	GND	-			GND	-			
K10	GND	-			GND	-			
K11	GND	-			GND	-			
K12	GND	-			GND	-			
K13	GND	-			GND	-			
K15	GND	-			GND	-			
K20	GND	-			GND	-			
K3	GND	-			GND	-			
K8	GND	-			GND	-			
L10	GND	-			GND	-			
L11	GND	-			GND	-			
L12	GND	-			GND	-			
L13	GND	-			GND	-			
M10	GND	-			GND	-			
M11	GND	-			GND	-			
M12	GND	-			GND	-			
M13	GND	-			GND	-			
N10	GND	-			GND	-			
N11	GND	-			GND	-			
N12	GND	-			GND	-			
N13	GND	-			GND	-			
N15	GND	-			GND	-			
N20	GND	-			GND	-			
N3	GND	-			GND	-			
N8	GND	-			GND	-			
P14	GND	-			GND	-			
P9	GND	-			GND	-			
R10	GND	-			GND	-			
R13	GND	-			GND	-			
T19	GND	-			GND	-			
T4	GND	-			GND	-			
W16	GND	-			GND	-			
W2	GND	-			GND	-			
W21	GND	-			GND	-			
W7	GND	-			GND	-			
Y10	GND	-			GND	-			
Y13	GND	-			GND	-			
D15	NC	-			NC	-			
G14	NC	-			NC	-			
G15	NC	-			NC	-			
D14	NC	-			NC	-			
E15	NC	-			NC	-			
E14	NC	-			NC	-			

LFE2M50E/SE and LFE2M70E/SE Logic Signal Connections: 900 fpBGA (Cont.)

LFE2M50E/SE					LFE2M70E/SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential	
-	-	-			VCCIO2	2			
H23	NC	-			PR15B	2	RDQ15	C (LVDS)*	
H24	NC	-			PR15A	2	RDQS15	T (LVDS)*	
D28	NC	-			PR14B	2	RDQ15	C	
-	-	-			GNDIO2	-			
E28	NC	-			PR14A	2	RDQ15	T	
G24	PR13B	2		C (LVDS)*	PR13B	2	RDQ15	C (LVDS)*	
H25	PR13A	2		T (LVDS)*	PR13A	2	RDQ15	T (LVDS)*	
D27	PR12B	2	RUM0_SPLLC_FB_A	C	PR12B	2	RUM0_SPLLC_FB_A/RDQ15	C	
GNDIO	GNDIO2	-			VCCIO2	2			
E27	PR12A	2	RUM0_SPLLT_FB_A	T	PR12A	2	RUM0_SPLLT_FB_A/RDQ15	T	
F26	PR11B	2	RUM0_SPLLC_IN_A	C (LVDS)*	PR11B	2	RUM0_SPLLC_IN_A/RDQ15	C (LVDS)*	
G25	PR11A	2	RUM0_SPLLT_IN_A	T (LVDS)*	PR11A	2	RUM0_SPLLT_IN_A/RDQ15	T (LVDS)*	
F24	PR9B	2	VREF2_2	C	PR9B	2	VREF2_2	C	
VCCIO	VCCIO2	-			-	-			
GNDIO	GNDIO2	-			GNDIO2	-			
F25	PR9A	2	VREF1_2	T	PR9A	2	VREF1_2	T	
VCCIO	VCCIO2	2			VCCIO2	2			
G23	XRES	-			XRES	1			
C30	URC_SQ_VCCR_X0	12			URC_SQ_VCCR_X0	12			
A29	URC_SQ_HDIN_P0	12		T	URC_SQ_HDIN_P0	12		T	
B30	URC_SQ_VCCIB0	12			URC_SQ_VCCIB0	12			
B29	URC_SQ_HDINN0	12		C	URC_SQ_HDINN0	12		C	
C27	URC_SQ_VCCTX0	12			URC_SQ_VCCTX0	12			
A26	URC_SQ_HDOUT_P0	12		T	URC_SQ_HDOUT_P0	12		T	
A27	URC_SQ_VCCOB0	12			URC_SQ_VCCOB0	12			
B26	URC_SQ_HDOUTN0	12		C	URC_SQ_HDOUTN0	12		C	
C26	URC_SQ_VCCTX1	12			URC_SQ_VCCTX1	12			
B25	URC_SQ_HDOUTN1	12		C	URC_SQ_HDOUTN1	12		C	
C25	URC_SQ_VCCOB1	12			URC_SQ_VCCOB1	12			
A25	URC_SQ_HDOUT_P1	12		T	URC_SQ_HDOUT_P1	12		T	
C29	URC_SQ_VCCR_X1	12			URC_SQ_VCCR_X1	12			
B28	URC_SQ_HDINN1	12		C	URC_SQ_HDINN1	12		C	
C28	URC_SQ_VCCIB1	12			URC_SQ_VCCIB1	12			
A28	URC_SQ_HDIN_P1	12		T	URC_SQ_HDIN_P1	12		T	
B24	URC_SQ_VCCAUX33	12			URC_SQ_VCCAUX33	12			
E24	URC_SQ_REFCLK_N	12		C	URC_SQ_REFCLK_N	12		C	
D24	URC_SQ_REFCLK_P	12		T	URC_SQ_REFCLK_P	12		T	
C24	URC_SQ_VCCP	12			URC_SQ_VCCP	12			
A20	URC_SQ_HDIN_P2	12		T	URC_SQ_HDIN_P2	12		T	
C20	URC_SQ_VCCIB2	12			URC_SQ_VCCIB2	12			
B20	URC_SQ_HDINN2	12		C	URC_SQ_HDINN2	12		C	
C19	URC_SQ_VCCR_X2	12			URC_SQ_VCCR_X2	12			
A23	URC_SQ_HDOUT_P2	12		T	URC_SQ_HDOUT_P2	12		T	
C23	URC_SQ_VCCOB2	12			URC_SQ_VCCOB2	12			
B23	URC_SQ_HDOUTN2	12		C	URC_SQ_HDOUTN2	12		C	
C22	URC_SQ_VCCTX2	12			URC_SQ_VCCTX2	12			
B22	URC_SQ_HDOUTN3	12		C	URC_SQ_HDOUTN3	12		C	

LFE2M50E/SE and LFE2M70E/SE Logic Signal Connections: 900 fpBGA (Cont.)

LFE2M50E/SE					LFE2M70E/SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential	
G7	PL8A	7	LDQ6	T (LVDS)*	NC	-			
G8	PL6A	7	LDQS6****	T (LVDS)*	NC	-			
G9	PL5A	7	LDQ6	T	NC	-			
H19	NC	-			NC	-			
H20	NC	-			NC	-			
H21	NC	-			NC	-			
H22	NC	-			NC	-			
H6	PL8B	7	LDQ6	C (LVDS)*	NC	-			
H8	PL5B	7	LDQ6	C	NC	-			
H9	PL2A	7	LDQ6	T (LVDS)*	NC	-			
J10	PL2B	7	LDQ6	C (LVDS)*	NC	-			
J20	NC	-			NC	-			
J21	NC	-			NC	-			
J9	PL4A	7	LDQ6	T (LVDS)*	NC	-			
K9	PL4B	7	LDQ6	C (LVDS)*	NC	-			
R9	NC	-			NC	-			
U22	NC	-			NC	-			
W9	NC	-			NC	-			
N13	VCCPLL	-			VCCPLL	-			
N18	VCCPLL	-			VCCPLL	-			
V13	VCCPLL	-			VCCPLL	-			
V18	VCCPLL	-			VCCPLL	-			

* Supports true LVDS. Other differential signals must be emulated with external resistors.

** These dedicated input pins can be used for GPLLs or GDLLs within the respective quadrant.

*** These sysCONFIG pins are dedicated I/O pins for configuration. The outputs are actively driven during normal device operation.

****Due to packaging bond out option, this DQS does not have all the necessary DQ pins bonded out for a full 8-bit data width.

Note: VCCIO and GND pads are used to determine the average DC current drawn by I/Os between GND/VCCIO connections, or between the last GND/VCCIO in an I/O bank and the end of an I/O bank. The substrate pads listed in the Pin Table do not necessarily have a one to one connection with a package ball or pin.

LFE2M100E/SE Logic Signal Connections: 900 fpBGA (Cont.)

LFE2M100E/SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential
U15	GND	-		
U16	GND	-		
U17	GND	-		
U18	GND	-		
U20	GND	-		
V14	GND	-		
V15	GND	-		
V16	GND	-		
V17	GND	-		
V27	GND	-		
V4	GND	-		
W23	GND	-		
W8	GND	-		
Y14	GND	-		
Y15	GND	-		
Y16	GND	-		
Y17	GND	-		
AA26	NC	-		
AB10	NC	-		
AB11	NC	-		
AB12	NC	-		
AB13	NC	-		
AB14	NC	-		
AB15	NC	-		
AB16	NC	-		
AB17	NC	-		
AB19	NC	-		
AB20	NC	-		
AB21	NC	-		
AB9	NC	-		
AC10	NC	-		
AC11	NC	-		
AC21	NC	-		
AC22	NC	-		
AC8	NC	-		
AC9	NC	-		
AD21	NC	-		
AD22	NC	-		
AD4	NC	-		
AD5	NC	-		
AD6	NC	-		
AD7	NC	-		
AD8	NC	-		

LFE2M70E/SE and LFE2M100E/SE Logic Signal Connections: 1152 fpBGA (Cont.)

LFE2M70E/SE				LFE2M100E/SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential
H33	PR14B	2	RDQ15	C	PR14B	2	RDQ15	C
GNDIO	GNDIO2	-			GNDIO2	-		
H34	PR14A	2	RDQ15	T	PR14A	2	RDQ15	T
J30	PR13B	2	RDQ15	C (LVDS)*	PR13B	2	RDQ15	C (LVDS)*
J29	PR13A	2	RDQ15	T (LVDS)*	PR13A	2	RDQ15	T (LVDS)*
VCCIO	VCCIO2	2			VCCIO2	2		
J27	PR11B	2	RUM0_SPLLC_IN_A/RDQ15	C (LVDS)*	PR11B	2	RUM0_SPLLC_IN_A/RDQ15	C (LVDS)*
J28	PR11A	2	RUM0_SPLLT_IN_A/RDQ15	T (LVDS)*	PR11A	2	RUM0_SPLLT_IN_A/RDQ15	T (LVDS)*
H31	PR9B	2	VREF2_2	C	PR9B	2	VREF2_2	C
GNDIO	GNDIO2	-			GNDIO2	-		
H32	PR9A	2	VREF1_2	T	PR9A	2	VREF1_2	T
VCCIO	VCCIO2	2			VCCIO2	2		
H30	XRES	1			XRES	1		
B33	URC_SQ_VCCRX0	12			URC_SQ_VCCRX0	12		
C33	URC_SQ_HDINP0	12		T	URC_SQ_HDINP0	12		T
B34	URC_SQ_VCCIB0	12			URC_SQ_VCCIB0	12		
C32	URC_SQ_HDINN0	12		C	URC_SQ_HDINN0	12		C
B32	URC_SQ_VCCTX0	12			URC_SQ_VCCTX0	12		
A33	URC_SQ_HDOUTP0	12		T	URC_SQ_HDOUTP0	12		T
C34	URC_SQ_VCCOB0	12			URC_SQ_VCCOB0	12		
A32	URC_SQ_HDOUTN0	12		C	URC_SQ_HDOUTN0	12		C
B31	URC_SQ_VCCTX1	12			URC_SQ_VCCTX1	12		
A31	URC_SQ_HDOUTN1	12		C	URC_SQ_HDOUTN1	12		C
D32	URC_SQ_VCCOB1	12			URC_SQ_VCCOB1	12		
A30	URC_SQ_HDOUTP1	12		T	URC_SQ_HDOUTP1	12		T
B30	URC_SQ_VCCRX1	12			URC_SQ_VCCRX1	12		
C31	URC_SQ_HDINN1	12		C	URC_SQ_HDINN1	12		C
D31	URC_SQ_VCCIB1	12			URC_SQ_VCCIB1	12		
C30	URC_SQ_HDINP1	12		T	URC_SQ_HDINP1	12		T
E29	URC_SQ_VCCAUX33	12			URC_SQ_VCCAUX33	12		
E30	URC_SQ_REFCLKN	12		C	URC_SQ_REFCLKN	12		C
D30	URC_SQ_REFCLKP	12		T	URC_SQ_REFCLKP	12		T
D29	URC_SQ_VCCP	12			URC_SQ_VCCP	12		
C29	URC_SQ_HDINP2	12		T	URC_SQ_HDINP2	12		T
D27	URC_SQ_VCCIB2	12			URC_SQ_VCCIB2	12		
C28	URC_SQ_HDINN2	12		C	URC_SQ_HDINN2	12		C
B29	URC_SQ_VCCRX2	12			URC_SQ_VCCRX2	12		
A29	URC_SQ_HDOUTP2	12		T	URC_SQ_HDOUTP2	12		T
E28	URC_SQ_VCCOB2	12			URC_SQ_VCCOB2	12		
A28	URC_SQ_HDOUTN2	12		C	URC_SQ_HDOUTN2	12		C
B28	URC_SQ_VCCTX2	12			URC_SQ_VCCTX2	12		
A27	URC_SQ_HDOUTN3	12		C	URC_SQ_HDOUTN3	12		C
D26	URC_SQ_VCCOB3	12			URC_SQ_VCCOB3	12		
A26	URC_SQ_HDOUTP3	12		T	URC_SQ_HDOUTP3	12		T
B27	URC_SQ_VCCTX3	12			URC_SQ_VCCTX3	12		
C27	URC_SQ_HDINN3	12		C	URC_SQ_HDINN3	12		C
B26	URC_SQ_VCCIB3	12			URC_SQ_VCCIB3	12		
C26	URC_SQ_HDINP3	12		T	URC_SQ_HDINP3	12		T
D28	URC_SQ_VCCRX3	12			URC_SQ_VCCRX3	12		

LFE2M70E/SE and LFE2M100E/SE Logic Signal Connections: 1152 fpBGA (Cont.)

LFE2M70E/SE				LFE2M100E/SE				
Ball Number	Ball/Pad Function	Bank	Dual Function	Differential	Ball/Pad Function	Bank	Dual Function	Differential
E4	NC	-			NC	-		
E9	NC	-			NC	-		
F10	NC	-			NC	-		
F25	NC	-			NC	-		
F26	NC	-			NC	-		
F27	NC	-			NC	-		
F28	NC	-			NC	-		
F29	NC	-			NC	-		
F30	NC	-			NC	-		
F31	NC	-			NC	-		
F32	NC	-			NC	-		
F33	NC	-			NC	-		
F34	NC	-			NC	-		
F5	NC	-			NC	-		
F6	NC	-			NC	-		
F7	NC	-			NC	-		
F8	NC	-			NC	-		
F9	NC	-			NC	-		
G10	NC	-			NC	-		
G11	NC	-			NC	-		
G24	NC	-			NC	-		
G25	NC	-			NC	-		
G26	NC	-			NC	-		
G27	NC	-			NC	-		
G28	NC	-			NC	-		
G29	NC	-			NC	-		
G30	NC	-			NC	-		
G33	NC	-			NC	-		
G34	NC	-			NC	-		
G7	NC	-			NC	-		
G8	NC	-			NC	-		
G9	NC	-			NC	-		
H10	NC	-			NC	-		
H11	NC	-			NC	-		
H24	NC	-			NC	-		
H25	NC	-			NC	-		
H26	NC	-			NC	-		
H27	NC	-			NC	-		
H28	NC	-			NC	-		
H29	NC	-			NC	-		
H8	NC	-			NC	-		
H9	NC	-			NC	-		
J10	NC	-			NC	-		
J11	NC	-			NC	-		
J24	NC	-			NC	-		
J25	NC	-			NC	-		
J26	NC	-			NC	-		
J9	NC	-			NC	-		
K10	NC	-			NC	-		

LatticeECP2 Standard Series Devices, Conventional Packaging
Commercial

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-6E-5T144C	90	1.2V	-5	TQFP	144	COM	6
LFE2-6E-6T144C	90	1.2V	-6	TQFP	144	COM	6
LFE2-6E-7T144C	90	1.2V	-7	TQFP	144	COM	6
LFE2-6E-5F256C	190	1.2V	-5	fpBGA	256	COM	6
LFE2-6E-6F256C	190	1.2V	-6	fpBGA	256	COM	6
LFE2-6E-7F256C	190	1.2V	-7	fpBGA	256	COM	6

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-12E-5T144C	93	1.2V	-5	TQFP	144	COM	12
LFE2-12E-6T144C	93	1.2V	-6	TQFP	144	COM	12
LFE2-12E-7T144C	93	1.2V	-7	TQFP	144	COM	12
LFE2-12E-5Q208C	131	1.2V	-5	PQFP	208	COM	12
LFE2-12E-6Q208C	131	1.2V	-6	PQFP	208	COM	12
LFE2-12E-7Q208C	131	1.2V	-7	PQFP	208	COM	12
LFE2-12E-5F256C	193	1.2V	-5	fpBGA	256	COM	12
LFE2-12E-6F256C	193	1.2V	-6	fpBGA	256	COM	12
LFE2-12E-7F256C	193	1.2V	-7	fpBGA	256	COM	12
LFE2-12E-5F484C	297	1.2V	-5	fpBGA	484	COM	12
LFE2-12E-6F484C	297	1.2V	-6	fpBGA	484	COM	12
LFE2-12E-7F484C	297	1.2V	-7	fpBGA	484	COM	12

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-20E-5Q208C	131	1.2V	-5	PQFP	208	COM	20
LFE2-20E-6Q208C	131	1.2V	-6	PQFP	208	COM	20
LFE2-20E-7Q208C	131	1.2V	-7	PQFP	208	COM	20
LFE2-20E-5F256C	193	1.2V	-5	fpBGA	256	COM	20
LFE2-20E-6F256C	193	1.2V	-6	fpBGA	256	COM	20
LFE2-20E-7F256C	193	1.2V	-7	fpBGA	256	COM	20
LFE2-20E-5F484C	331	1.2V	-5	fpBGA	484	COM	20
LFE2-20E-6F484C	331	1.2V	-6	fpBGA	484	COM	20
LFE2-20E-7F484C	331	1.2V	-7	fpBGA	484	COM	20
LFE2-20E-5F672C	402	1.2V	-5	fpBGA	672	COM	20
LFE2-20E-6F672C	402	1.2V	-6	fpBGA	672	COM	20
LFE2-20E-7F672C	402	1.2V	-7	fpBGA	672	COM	20

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-35E-5F484C	331	1.2V	-5	fpBGA	484	COM	35
LFE2-35E-6F484C	331	1.2V	-6	fpBGA	484	COM	35
LFE2-35E-7F484C	331	1.2V	-7	fpBGA	484	COM	35
LFE2-35E-5F672C	450	1.2V	-5	fpBGA	672	COM	35
LFE2-35E-6F672C	450	1.2V	-6	fpBGA	672	COM	35
LFE2-35E-7F672C	450	1.2V	-7	fpBGA	672	COM	35

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-50E-5F484C	339	1.2V	-5	fpBGA	484	COM	50
LFE2-50E-6F484C	339	1.2V	-6	fpBGA	484	COM	50
LFE2-50E-7F484C	339	1.2V	-7	fpBGA	484	COM	50
LFE2-50E-5F672C	500	1.2V	-5	fpBGA	672	COM	50
LFE2-50E-6F672C	500	1.2V	-6	fpBGA	672	COM	50
LFE2-50E-7F672C	500	1.2V	-7	fpBGA	672	COM	50

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-70E-5F672C	500	1.2V	-5	fpBGA	672	COM	70
LFE2-70E-6F672C	500	1.2V	-6	fpBGA	672	COM	70
LFE2-70E-7F672C	500	1.2V	-7	fpBGA	672	COM	70
LFE2-70E-5F900C	583	1.2V	-5	fpBGA	900	COM	70
LFE2-70E-6F900C	583	1.2V	-6	fpBGA	900	COM	70
LFE2-70E-7F900C	583	1.2V	-7	fpBGA	900	COM	70

Industrial

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-6E-5T144I	90	1.2V	-5	TQFP	144	IND	6
LFE2-6E-6T144I	90	1.2V	-6	TQFP	144	IND	6
LFE2-6E-5F256I	190	1.2V	-5	fpBGA	256	IND	6
LFE2-6E-6F256I	190	1.2V	-6	fpBGA	256	IND	6

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-12E-5T144I	93	1.2V	-5	TQFP	144	IND	12
LFE2-12E-6T144I	93	1.2V	-6	TQFP	144	IND	12
LFE2-12E-5Q208I	131	1.2V	-5	PQFP	208	IND	12
LFE2-12E-6Q208I	131	1.2V	-6	PQFP	208	IND	12
LFE2-12E-5F256I	193	1.2V	-5	fpBGA	256	IND	12
LFE2-12E-6F256I	193	1.2V	-6	fpBGA	256	IND	12
LFE2-12E-5F484I	297	1.2V	-5	fpBGA	484	IND	12
LFE2-12E-6F484I	297	1.2V	-6	fpBGA	484	IND	12

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-20SE-5QN208I	131	1.2V	-5	Lead-Free PQFP	208	Ind	20
LFE2-20SE-6QN208I	131	1.2V	-6	Lead-Free PQFP	208	Ind	20
LFE2-20SE-5FN256I	193	1.2V	-5	Lead-Free fpBGA	256	Ind	20
LFE2-20SE-6FN256I	193	1.2V	-6	Lead-Free fpBGA	256	Ind	20
LFE2-20SE-5FN484I	331	1.2V	-5	Lead-Free fpBGA	484	Ind	20
LFE2-20SE-6FN484I	331	1.2V	-6	Lead-Free fpBGA	484	Ind	20
LFE2-20SE-5FN672I	402	1.2V	-5	Lead-Free fpBGA	672	Ind	20
LFE2-20SE-6FN672I	402	1.2V	-6	Lead-Free fpBGA	672	Ind	20

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-35SE-5FN484I	331	1.2V	-5	Lead-Free fpBGA	484	Ind	35
LFE2-35SE-6FN484I	331	1.2V	-6	Lead-Free fpBGA	484	Ind	35
LFE2-35SE-5FN672I	450	1.2V	-5	Lead-Free fpBGA	672	Ind	35
LFE2-35SE-6FN672I	450	1.2V	-6	Lead-Free fpBGA	672	Ind	35

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-50SE-5FN484I	339	1.2V	-5	Lead-Free fpBGA	484	Ind	50
LFE2-50SE-6FN484I	339	1.2V	-6	Lead-Free fpBGA	484	Ind	50
LFE2-50SE-5FN672I	500	1.2V	-5	Lead-Free fpBGA	672	Ind	50
LFE2-50SE-6FN672I	500	1.2V	-6	Lead-Free fpBGA	672	Ind	50

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2-70SE-5FN672I	500	1.2V	-5	Lead-Free fpBGA	672	Ind	70
LFE2-70SE-6FN672I	500	1.2V	-6	Lead-Free fpBGA	672	Ind	70
LFE2-70SE-5FN900I	583	1.2V	-5	Lead-Free fpBGA	900	Ind	70
LFE2-70SE-6FN900I	583	1.2V	-6	Lead-Free fpBGA	900	Ind	70

LatticeECP2M Standard Series Devices, Conventional Packaging
Commercial

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2M20E-5F484C	304	1.2V	-5	fpBGA	484	COM	20
LFE2M20E-6F484C	304	1.2V	-6	fpBGA	484	COM	20
LFE2M20E-7F484C	304	1.2V	-7	fpBGA	484	COM	20
LFE2M20E-5F256C	140	1.2V	-5	fpBGA	256	COM	20
LFE2M20E-6F256C	140	1.2V	-6	fpBGA	256	COM	20
LFE2M20E-7F256C	140	1.2V	-7	fpBGA	256	COM	20

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2M35E-5F672C	410	1.2V	-5	fpBGA	672	COM	35
LFE2M35E-6F672C	410	1.2V	-6	fpBGA	672	COM	35
LFE2M35E-7F672C	410	1.2V	-7	fpBGA	672	COM	35
LFE2M35E-5F484C	303	1.2V	-5	fpBGA	484	COM	35
LFE2M35E-6F484C	303	1.2V	-6	fpBGA	484	COM	35
LFE2M35E-7F484C	303	1.2V	-7	fpBGA	484	COM	35
LFE2M35E-5F256C	140	1.2V	-5	fpBGA	256	COM	35
LFE2M35E-6F256C	140	1.2V	-6	fpBGA	256	COM	35
LFE2M35E-7F256C	140	1.2V	-7	fpBGA	256	COM	35

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2M50E-5F900C	410	1.2V	-5	fpBGA	900	COM	50
LFE2M50E-6F900C	410	1.2V	-6	fpBGA	900	COM	50
LFE2M50E-7F900C	410	1.2V	-7	fpBGA	900	COM	50
LFE2M50E-5F672C	372	1.2V	-5	fpBGA	672	COM	50
LFE2M50E-6F672C	372	1.2V	-6	fpBGA	672	COM	50
LFE2M50E-7F672C	372	1.2V	-7	fpBGA	672	COM	50
LFE2M50E-5F484C	270	1.2V	-5	fpBGA	484	COM	50
LFE2M50E-6F484C	270	1.2V	-6	fpBGA	484	COM	50
LFE2M50E-7F484C	270	1.2V	-7	fpBGA	484	COM	50

Part Number	I/Os	Voltage	Grade	Package	Pins	Temp.	LUTs (K)
LFE2M70E-5F1152C	436	1.2V	-5	fpBGA	1152	COM	70
LFE2M70E-6F1152C	436	1.2V	-6	fpBGA	1152	COM	70
LFE2M70E-7F1152C	436	1.2V	-7	fpBGA	1152	COM	70
LFE2M70E-5F900C	416	1.2V	-5	fpBGA	900	COM	70
LFE2M70E-6F900C	416	1.2V	-6	fpBGA	900	COM	70
LFE2M70E-7F900C	416	1.2V	-7	fpBGA	900	COM	70

Date	Version	Section	Change Summary
August 2006 (cont.)	01.1 (cont.)	Pinout Information (cont.)	Added Information on: Available Device Resources per Packaged Device table.
		Ordering Information	Updated ordering part number table to include ECP2-12.
			Updated topside mark drawing.
September 2006	02.0	Multiple	Added information regarding LatticeECP2M support throughout.
September 2006	02.1	DC and Switching Characteristics	Added Receiver Total Jitter Tolerance Specification table.
			Removed power-up requirements for proper configuration footnote in Recommended Operating Conditions table.
December 2006	02.2	Introduction	LatticeECP2M Selection Guide table has been updated.
		Architecture	Figure 2-16. Per Region Secondary Clock Selection has been updated.
			Figure 2-39. Simplified Channel Block Diagram for SERDES and PCS has been updated.
		DC and Switching	Footnotes have been added to Recommended Operating Conditions.
			DC Electrical Characteristics table has been updated.
			Supply Current (Standby) tables have been updated.
			Initialization Supply Current table have been updated.
			Updated timing numbers to include LFE2-12E (rev A 0.08).
		Pinout Information	Updated to include the entire ECP2 device information as well as 256-fpBGA and 484-fpBGA pin information for the ECP2M35E.
		Ordering Information	Updated to include the entire ECP2 and ECP2M device ordering information.
February 2007	02.3	Architecture	Updated EBR Asynchronous Reset section.
March 2007	02.4	DC and Switching Characteristics	Power-sequencing footnotes have been added to the Recommended Operating Conditions. DDR2 performance has been updated to 266MHz.
March 2007	02.5	Introduction	Added "Security Series" to the LatticeECP2 and LatticeECP2M families.
		Architecture	Enhanced Configuration Option section updated.
		DC and Switching	Recommended Operating Conditions table - footnote 4 updated.
		Ordering Information	"Security Series" ordering part numbers added.
April 2007	02.6	Introduction	LatticeECP2M family table has been updated for user I/O counts.
		Ordering Information	LatticeECP2M family ordering part number section has been updated to add 1152-fpBGA package for the ECP2M70 and ECP2M100.
July 2007	02.7	Architecture	Updated text in Ripple Mode section.
		DC and Switching	ECP2/M Supply Current information has been updated. Typical Building Block Function Performance, External Switching Characteristics, Internal Switching Characteristics, Family Timing Adders, sysCLOCK GPLL Timing, sysCLOCK SPLN Timing, DLL Timing and sysCONFIG Port Timing Specifications have been updated (timing rev. A 0.10). SERDES timing information has been updated. PCI Express timing information has been updated.
		Pinout Information	Added LatticeECP2M20 pinout information.
August 2007	02.8	Introduction	1156-fpBGA package option has been removed from the LatticeECP2M family.
		Architecture	Table 2-16. Selectable Master Clock (CCLK) Frequencies During Configuration table has been updated.
		DC and Switching	Supply Current (Standby) table has been updated.
			DSP Function timing has been updated.