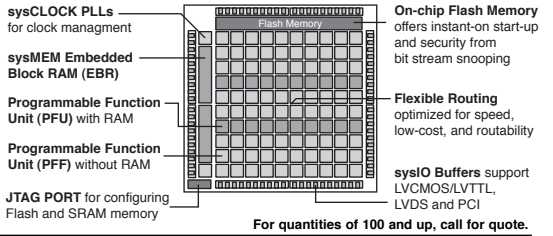
LATTICE Programmable Logic

MACHXO CROSSOVER PROGRAMMABLE LOGIC DEVICE

The MachXO™ family of non-volatile, infinitely reconfigurable Programmable Logic Devices (PLDs) is designed for applications traditionally implemented using CPLDs or low-capacity FPGAs. The MachXO™ family combines an optimized Look-Up Table (LUT) fabric with Lattice's ispXP™ technology to provide the high pin-to-pin performance and instant-on associated with CPLDs, with the flexibility of FPGAs, all in a low-cost device.

- Instant-on, powers up in less than 1mS
- Single-chip, no external configuration memory
- Excellent design security, no bit stream to intercept
- TransFR Technology Allows Simple Field Upgrades
- Performance to 3.5ns Pin-to-Pin
- LUT Architecture expandable between 256 to 2280 LUTs
- Up to 27.6 Kbits sysMEM Embedded Block RAM
- Includes dedicated FIFO control logic
- Up to 7.7 Kbits distributed RAM
- Programmable sysIO™ buffer supports wide range of interfaces:
  - LVCMOS 3.3/2.5/1.8/1.5/1.2
  - LVTTL
  - PCI
  - LVDS, Bus-LVDS, LVPECL, RSDS
- Sleep Mode Reduces Standby Power to <100µA
- Speed
  - 3 = Slowest
  - 5 = Fastest



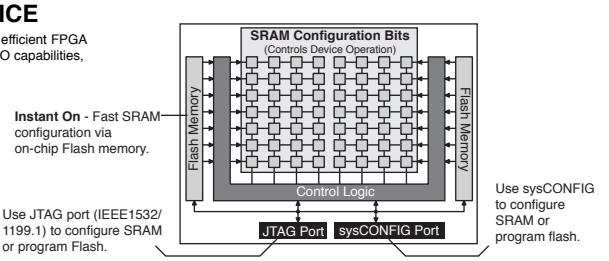
For quantities of 100 and up, call for quote.

MOUSER STOCK NO.	Lattice Part No.	Package	Voltage (V)	I/O Combinations	Embedded Block Ram (Kbits)	Distributed Ram (Kbits)	# of PLLs	Speed Grade	Price Each 1	Price Each 25
256 LUTs										
842-MXO256C5TN100C	LCMXO256C-5TN100C	TQFP-100	1.8-3.3V	78	-	2	-	-5 Speed	8.90	6.85
842-MXO256C3TN100C	LCMXO256C-3TN100C	TQFP-100	1.8-3.3V	78	-	2	-	-3 Speed	6.70	5.15
640 LUTs										
842-MXO640C5FN256C	LCMXO640C-5FN256C	fpBGA-256	1.8-3.3V	159	-	6.1	-	-5 Speed	20.00	15.38
842-MXO640C5TN144C	LCMXO640C-5TN144C	TQFP-144	1.8-3.3V	113	-	6.1	-	-5 Speed	17.40	13.38
842-MXO640C5TN100C	LCMXO640C-5TN100C	TQFP-100	1.8-3.3V	74	-	6.1	-	-5 Speed	15.70	12.08
842-MXO640C3FN256C	LCMXO640C-3FN256C	fpBGA-256	1.8-3.3V	159	-	6.1	-	-3 Speed	16.20	12.46
842-MXO640C3TN144C	LCMXO640C-3TN144C	TQFP-144	1.8-3.3V	113	-	6.1	-	-3 Speed	13.60	10.46
842-MXO640C3TN100C	LCMXO640C-3TN100C	TQFP-100	1.8-3.3V	74	-	6.1	-	-3 Speed	11.90	9.15
1200 LUTs										
842-MXO1200C5FTN256C	LCMXO1200C-5FTN256C	ftBGA-256	1.8-3.3V	211	9.2	6.4	1	-5 Speed	26.30	20.23
842-MXO1200C5TN144C	LCMXO1200C-5TN144C	TQFP-144	1.8-3.3V	113	9.2	6.4	1	-5 Speed	23.70	18.23
842-MXO1200C5TN100C	LCMXO1200C-5TN100C	TQFP-100	1.8-3.3V	73	9.2	6.4	1	-5 Speed	22.00	16.92
842-MXO1200C3FTN256C	LCMXO1200C-3FTN256C	ftBGA-256	1.8-3.3V	211	9.2	6.4	1	-3 Speed	20.50	15.77
842-MXO1200C3TN144C	LCMXO1200C-3TN144C	TQFP-144	1.8-3.3V	113	9.2	6.4	1	-3 Speed	17.90	13.77
842-MXO1200C3TN100C	LCMXO1200C-3TN100C	TQFP-100	1.8-3.3V	73	9.2	6.4	1	-3 Speed	16.20	12.46
1200 LUTs										
842-MXO2280C5FTN324C	LCMXO2280C-5FTN324C	ftBGA-324	1.8-3.3V	271	27.6	7.7	2	-5 Speed	44.10	33.92
842-MXO2280C5FTN256C	LCMXO2280C-5FTN256C	fpBGA-256	1.8-3.3V	211	27.6	7.7	2	-5 Speed	39.90	30.69
842-MXO2280C5TN144C	LCMXO2280C-5TN144C	TQFP-144	1.8-3.3V	113	27.6	7.7	2	-5 Speed	37.30	28.69
842-MXO2280C5TN100C	LCMXO2280C-5TN100C	TQFP-100	1.8-3.3V	73	27.6	7.7	2	-5 Speed	35.60	27.38
842-MXO2280C3FTN324C	LCMXO2280C-3FTN324C	ftBGA-324	1.8-3.3V	271	27.6	7.7	2	-3 Speed	34.40	26.46
842-MXO2280C3FTN256C	LCMXO2280C-3FTN256C	fpBGA-256	1.8-3.3V	211	27.6	7.7	2	-3 Speed	30.20	23.23
842-MXO2280C3TN144C	LCMXO2280C-3TN144C	TQFP-144	1.8-3.3V	113	27.6	7.7	2	-3 Speed	27.60	21.23
842-MXO2280C3TN100C	LCMXO2280C-3TN100C	TQFP-100	1.8-3.3V	73	27.6	7.7	2	-3 Speed	25.90	19.92

LATTICEXP NON-VOLATILE INFINITELY RECONFIGURABLE FPGA DEVICE

The LatticeXP family utilizes the same proven FPGA fabric as Lattice's popular LatticeECP™ and LatticeEC™ FPGA families. This highly efficient FPGA fabric is optimized to deliver the best balance of features for cost-sensitive high-volume applications. The LatticeXP family offers flexible I/O capabilities, distributed memory, embedded memory, high-performance logic and superior routing.

- TransFR™ Technology Allows Simple Field Upgrades
- Non-Volatile, Infinitely Reconfigurable Memory
  - Reconfigurable SRAM-based logic combined with Flash non-volatile memory
  - SRAM and non-volatile memory programmable through system configuration and JTAG ports
  - Dedicated security circuitry
- Extensive Density and Package Options
  - 3.1K to 19.7K Look-up Tables (LUTs)
  - TQFP, PQFP and fpBGA packages
  - 62 to 340 I/Os
  - Density migration supported
- Programmable sysIO™ buffer supports wide range of interfaces:
  - LVCMOS 3.3/2.5/1.8/1.5/1.2
  - LVTTL
  - SSTL 18 Class I
  - SSTL 3/2 Class I, II
  - HSTL15 Class I, III
  - HSTL 18 Class I, II, III
  - PCI
  - LVDS, Bus-LVDS, LVPECL, RSDS
- Speed
  - 3 = Slowest
  - 5 = Fastest



For quantities of 100 and up, call for quote.

MOUSER STOCK NO.	Lattice Part No.	Package	Voltage (V)	I/O Combinations	Embedded Block Ram (Kbits)	Distributed Ram (Kbits)	# of PLLs	Speed Grade	Price Each 1	Price Each 25
3.1K LUTs										
842-LFXP3C5QN208C	LFXP3C-5QN208C	PQFP-208	1.8-3.3V	136	54	12	2	-5 Speed	22.90	17.62
842-LFXP3C5TN144C	LFXP3C-5TN144C	TQFP-144	1.8-3.3V	100	54	12	2	-5 Speed	21.60	16.62
842-LFXP3C5TN100C	LFXP3C-5TN100C	TQFP-100	1.8-3.3V	62	54	12	2	-5 Speed	20.30	15.62
842-LFXP3C3QN208C	LFXP3C-3QN208C	PQFP-208	1.8-3.3V	136	54	12	2	-3 Speed	17.90	13.77
842-LFXP3C3TN144C	LFXP3C-3TN144C	TQFP-144	1.8-3.3V	100	54	12	2	-3 Speed	16.70	12.85
842-LFXP3C3TN100C	LFXP3C-3TN100C	TQFP-100	1.8-3.3V	62	54	12	2	-3 Speed	15.40	11.85
5.8K LUTs										
842-LFXP6C5FN256C	LFXP6C-5FN256C	fpBGA-256	1.8-3.3V	188	72	23	2	-5 Speed	36.80	28.31
842-LFXP6C5QN208C	LFXP6C-5QN208C	PQFP-208	1.8-3.3V	142	72	23	2	-5 Speed	35.50	27.31
842-LFXP6C5TN144C	LFXP6C-5TN144C	TQFP-144	1.8-3.3V	100	72	23	2	-5 Speed	34.30	26.38
842-LFXP6C3FN256C	LFXP6C-3FN256C	fpBGA-256	1.8-3.3V	188	72	23	2	-3 Speed	28.40	21.85
842-LFXP6C3QN208C	LFXP6C-3QN208C	PQFP-208	1.8-3.3V	142	72	23	2	-3 Speed	27.10	20.85
842-LFXP6C3TN144C	LFXP6C-3TN144C	TQFP-144	1.8-3.3V	100	72	23	2	-3 Speed	25.80	19.85
9.7K LUTs										
842-LFXP10C5FN388C	LFXP10C-5FN388C	fpBGA-388	1.8-3.3V	244	216	39	4	-5 Speed	56.00	43.08
842-LFXP10C5FN256C	LFXP10C-5FN256C	fpBGA-256	1.8-3.3V	188	216	39	4	-5 Speed	53.50	41.15
842-LFXP10C3FN388C	LFXP10C-3FN388C	fpBGA-388	1.8-3.3V	244	216	39	4	-3 Speed	43.00	33.08
842-LFXP10C3FN256C	LFXP10C-3FN256C	fpBGA-256	1.8-3.3V	188	216	39	4	-3 Speed	40.50	31.15
15.4K LUTs										
842-LFXP15C5FN388C	LFXP15C-5FN388C	fpBGA-388	1.8-3.3V	268	324	61	4	-5 Speed	84.10	64.69
842-LFXP15C5FN256C	LFXP15C-5FN256C	fpBGA-256	1.8-3.3V	188	324	61	4	-5 Speed	81.50	62.69
842-LFXP15C3FN388C	LFXP15C-3FN388C	fpBGA-388	1.8-3.3V	268	324	61	4	-3 Speed	64.20	49.38
842-LFXP15C3FN256C	LFXP15C-3FN256C	fpBGA-256	1.8-3.3V	188	324	61	4	-3 Speed	61.60	47.38
19.7K LUTs										
842-LFXP20C5FN256C	LFXP20C-5FN256C	fpBGA-256	1.8-3.3V	188	396	79	4	-5 Speed	98.20	75.54
842-LFXP20C3FN256C	LFXP20C-3FN256C	fpBGA-256	1.8-3.3V	188	396	79	4	-3 Speed	73.60	56.62

MACHXO / LATTICEXP EVALUATION BOARDS & SOFTWARE

- ispLEVER, Base Version optional. Only required when needed to take advantage of advance functions of the MachXO/LatticeXP evaluation boards.
- ispVM required to communicate with MachXO/LatticeXP evaluations boards. Can be obtained at http://www.latticesemi.com/software
- Evaluation Boards packaged with 25 pin parallel cable.

For quantities of 100 and up, call for quote.

MOUSER STOCK NO.	Lattice Part No.	Download Cable	Power Supply	Device Included	Description	Price Each
842-LCMXO640C-L-EV	LCMXO640C-L-EV	Yes	Yes	LCMXO640C-4F256C	MachXO Standard Eval Board (ispLEVER not included).	250.00
842-LFXP10C-L-EV	LFXP10C-L-EV	Yes	Yes	LFXP10C-4F256C	LatticeXP Standard Eval Board (ispLEVER not included).	250.00
842-LS-HDL-BASE-PC-N	LS-HDL-BASE-PC-N	-	-	-	ispLEVER, Base Version (Windows)	695.00
842-LS-ADV-LX-F	LS-ADV-LX-F	-	-	-	ispLEVER, Advanced Version (Linux)	1,995.00
842-LS-ADV-WS-F	LS-ADV-WS-F	-	-	-	ispLEVER, Advanced Version (Unix)	1,995.00

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