
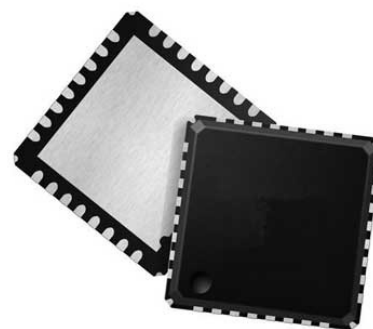


CPLD MachXO2 Family 2.5V/3.3V 32-Pin QFN EP Tray

Manufacturer:	Lattice Semiconductor Corp
Package/Case:	QFN32
Product Type:	Programmable Logic ICs
RoHS:	RoHS Compliant/Lead free 
Lifecycle:	Active



Images are for reference only

[Inquiry](#)

General Description

The MachXO2 family of ultra low power, instant-on, non-volatile PLDs has six devices with densities ranging from 256 to 6864 Look-Up Tables (LUTs). In addition to LUT-based, low-cost programmable logic these devices feature Embedded Block RAM (EBR), Distributed RAM, User Flash Memory (UFM), Phase Locked Loops (PLLs), preengineered source synchronous I/O support, advanced configuration support including dual-boot capability and hardened versions of commonly used functions such as SPI controller, I2 C controller and timer/counter. These features allow these devices to be used in low cost, high volume consumer and system applications.

The MachXO2 devices are designed on a 65nm non-volatile low power process. The device architecture has several features such as programmable low swing differential I/Os and the ability to turn off I/O banks, on-chip PLLs and oscillators dynamically. These features help manage static and dynamic power consumption resulting in low static power for all members of the family.

The MachXO2 devices are available in two versions – ultra low power (ZE) and high performance (HC and HE) devices. The ultra low power devices are offered in three speed grades -1, -2 and -3, with -3 being the fastest. Similarly, the high-performance devices are offered in three speed grades: -4, -5 and -6, with -6 being the fastest. HC devices have an internal linear voltage regulator which supports external VCC supply voltages of 3.3V or 2.5V. ZE and HE devices only accept 1.2V as the external VCC supply voltage. With the exception of power supply voltage all three types of devices (ZE, HC and HE) are functionally compatible and pin compatible with each other.

The MachXO2 PLDs are available in a broad range of advanced halogen-free packages ranging from the space saving 2.5x2.5 mm WLCSP to the 23x23 mm fpBGA. MachXO2 devices support density migration within the same package. Table 1-1 shows the LUT densities, package and I/O options, along with other key parameters.

The pre-engineered source synchronous logic implemented in the MachXO2 device family supports a broad range of interface standards, including LPDDR, DDR, DDR2 and 7:1 gearing for display I/Os.

The MachXO2 devices offer enhanced I/O features such as drive strength control, slew rate control, PCI compatibility, bus-keeper latches, pull-up resistors, pull-down resistors, open drain outputs and hot socketing. Pull-up, pulldown and bus-keeper features are controllable on a “per-pin” basis.

A user-programmable internal oscillator is included in MachXO2 devices. The clock output from this oscillator may be divided by the timer/counter for use as clock input in functions such as LED control, key-board scanner and similar state machines.

The MachXO2 devices also provide flexible, reliable and secure configuration from on-chip Flash memory. These devices can also configure themselves from external SPI Flash or be configured by an external master through the JTAG test access port or through the I2 C port. Additionally, MachXO2 devices support dual-boot capability (using external Flash memory) and remote field upgrade (TransFR) capability.

Recommended For You

LC5512MV-45F256C

Lattice Semiconductor Corp
BGA

PALCE22V10Q-25PC/4

Lattice Semiconductor Corp
DIP

LC4032V-75TN48I

Lattice Semiconductor Corp
QFP48

PALCE16V8H-15JC/4

Lattice Semiconductor Corp
PLCC20

PALCE22V10H-10JC/5

Lattice Semiconductor Corp
PLCC28

PALCE16V8H-7PC/5

Lattice Semiconductor Corp
DIP20

PALCE20V8H-15JC/4

Lattice Semiconductor Corp
PLCC

PALCE16V8H-5JC/5

Lattice Semiconductor Corp
PLCC20

PALCE22V10H-7PC/5

Lattice Semiconductor Corp
DIP

PALCE22V10H-15JC/4

Lattice Semiconductor Corp
PLCC28

LC4032V-75TN48C

Lattice Semiconductor Corp
QFP48

LC4032V-75T48C

Lattice Semiconductor Corp
TQFP48

LC4512V-5FN256C

Lattice Semiconductor Corp
BGA

LCMXO640C-3T144C

Lattice Semiconductor Corp
QFP144

LCMXO2280C-3MI32C

Lattice Semiconductor Corp
QFN16