Stock#: P8X32A-Q44   **Category:** Propeller-Chips
P8X32A-Q44 (QFP) Chip

Introducing Parallax's first full-custom silicon chip, designed from the transistor-level up for speed, flexibility, and pure FUN!

The Propeller is a multi-processing chip with eight 32-bit processors (cogs) and a shared memory which includes 32KB of RAM and 32KB of ROM with a font, math tables, and Spin interpreter. Cogs can be programmed in either high-level Spin language for simplicity, or assembly language for performance. Adding VGA, TV video, mice, keyboards, motors, and sensors to your application is a matter of high-level integration using Parallax's pre-built software objects.

The Propeller chips are designed for applications which cannot be done with other chips, such as full user interfaces with concurrent background processing. These chips allow such systems to be realized, often with only a crystal, an 8-pin EEPROM, and a few resistors. The Propeller can execute 160 million instructions per second across its eight processors while consuming only 80ma. It can be throttled back in software to under 20uA with all eight cogs still running at 20KHz.

Connecting a Propeller chip to your personal computer for programming is made simple by our PropPlug and PropClip USB-to-serial converters. Using one of these tools, the Propeller chip can run on its own, after loading, with just a 3.3V power supply. Add an external crystal for faster, more accurate timing, and an external EEPROM for non-volatile code storage.

While the Propeller is available in three different packages, the P8X32A-D40 is most useful for prototyping, due to its 40-pin DIP format. See the PropStick for a complete Propeller prototyping system based on the same 40-pin layout.

Package Type	44-pin QFP
Model Number	P8X32A-Q44
Processors (cogs)	Eight
Architecture	32-bits
System Clock Speed	DC to 80 MHz
Power Requirements	3.3 volts DC
Clock Modes	(a) External crystal 4 -8 MHz (16 x PLL) (b) Internal oscillator ~12 MHz or ~20 kHz

	(c) Direct drive
Global RAM/ROM	64 K bytes; 32 K RAM / 32 K ROM
Cog RAM	512 x 32 bits each
I/O Pins	32 (simultaneously addressable by all eight cogs)
Current Source/Sink per I/O	40 mA

Pin Assignments	
P0-P31	General purpose I/O. Can source/sink 50 mA each at 3.3 VDC
P31	Rx from host (general purpose I/O after boot up).
P30	Tx to host (general purpose I/O after boot up/download).
P29	I2C SDA connection to external EEPROM (general purpose I/O after boot up).
P28	I2C SCL connection to external EEPROM (general purpose I/O after boot up).
Vdd	3.3 V power (2.7 - 3.6 VDC).
Vss	Ground (0 VDC).
BOEn	Brown Out Enable (active low). Must be connected to either Vdd or Vss. If low, RESn becomes a weak output (~5 KΩ) for monitoring purposes but can be driven low to cause reset. If high, RESn is a CMOS input with Schmitt Trigger.
RESn	Reset (active low). When low, resets the Propeller chip; all cogs disabled and I/O pins floating. Propeller restarts 50 ms after RESn transitions from low to high.
XI	Crystal / clock input. Can connect to crystal or oscillator.
XO	Crystal Output. Provides feedback for an external crystal. Internal C and R selectable for crystals (no other components required).