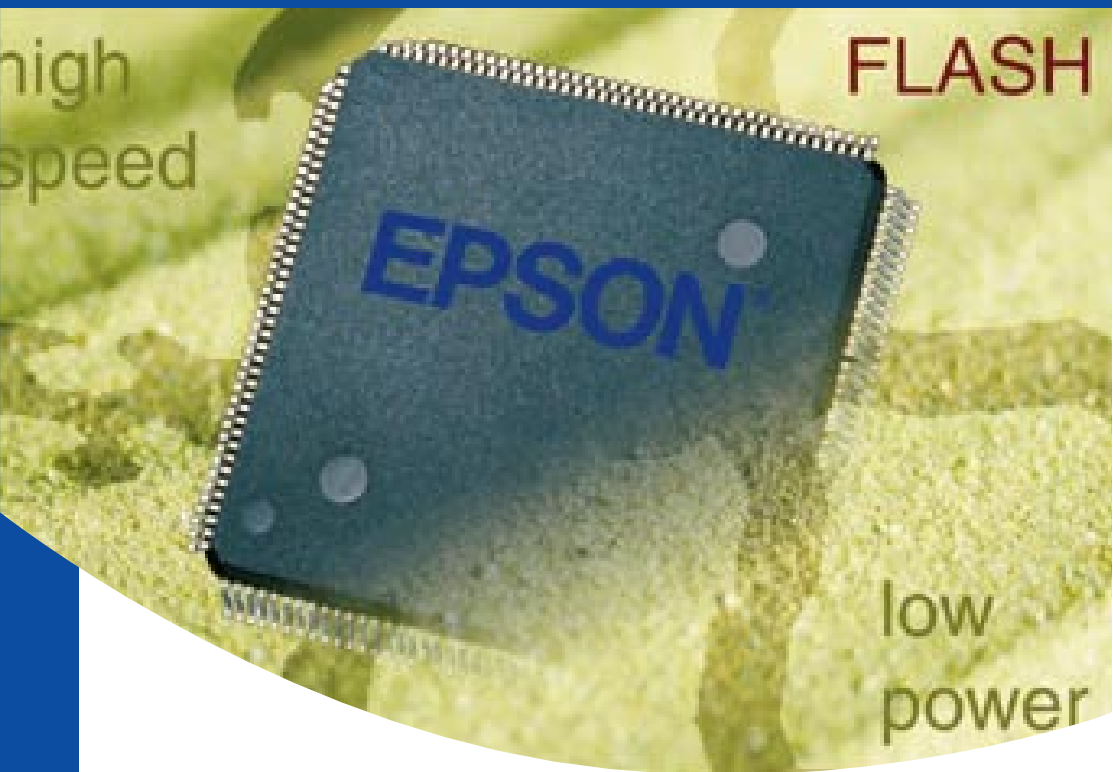
EPSON 8-Bit Microcontroller



Application Specific Microcontrollers

- **High Performance**
- **Low Power Consumption**
- **Dot Matrix LCD-Driver On-Board**
- **A/D Converter**
- **Flash Memory**
- **Built in Gate Array**
- **Sound Generator/Melody Generator**
- **“Die” Package available**

ENERGY SAVING EPSON

The E0C88 Series of L
8-Bit Microcontrollers

	Model No.	Supply Voltage (V)	Current Consumption			Clock frequency (Hz)	Memory (bit)		I/O Port (bit)			Instructions	Interrupts		LCD Drivers	
			Operating	Halt	Sleep		ROM	RAM	Input	Output	Input/ Output		Ext.	Int.	Common	Segme
No LCD-Driver access to ext. memory	E0C88104	1.8 to 5.5	14µA 2mA	2µA	0.3µA	32.768k 4.2M	4kB	256x8	10	9	8	608	2	4	–	–
	E0C88112		14µA 2mA			32.768k 4.2M	12kB									
Dot-Matrix LCD access to ext. memory	E0C88317	1.8 to 5.5	14µA 2mA	2µA	0.3µA	32.768k 4.2M	16kB	2kB	10	9	8	608	2	4	8,16/32	67/51
	E0C88348		14µA 2mA			32.768k 4.2M	48kB	2kB								
	E0C88P348	3.3 to 5.5	12µA 15mA	7µA	1µA	32.768k 1M	48kB	2kB								
	E0C88349[1]	1.8 to 5.5	9µA 1.1mA	1.5µA	0.3µA	32.768k 4.2M	48kB	2kB	10	34	16				8,16/32	67/51
	E0C88365	2.2 to 5.5	14µA 1.5mA	2µA	0.3µA	32.768k 2.5M	64kB	3kB		17					18	80
LCD Controller access to ext. memory	E0C88408	1.8 to 5.5	15µA 2mA	3µA	0.6µA	32.768k 4.2M	8kB	3.75kB	12	3	26	608	2	4	LCD Controller	
	E0C88409		15µA 2mA			32.768k 4.2M										
	E0C88432[1]		TBD	TBD	TBD	32.768k 4.2M	32kB	2kB	10	9	8					
Dot-Matrix LCD no access to ext. memory	E0C88832	1.8 to 5.5	9µA 1.1mA	1.5µA	0.3µA	32.768k 4.2M	32kB	1.5kB	9	5	8	608	2	4	8,16/32	67/51
	E0C88862		9µA 1.1mA	1.5µA		32.768k 4.2M	60kB								8,16/32	57/41
	E0C88816		7µA 0.9mA	1.5µA	0.45µA	45/60k 4.2M	116kB	8kB	9	7	16	608	2	5	8,16/32	88/72
Flash memory access to ext. memory	E0C88F360	2.7 to 5.5	18µA 2mA	3µA	–	32.768k 4.2M	61kB	2kB	10	34	16	608	2	5	8,16/32	67/51
On-Board Gate Array access to ext. memory	E0C88A32[1]	1.2 to 3.6	TBD	TBD	TBD	32.768k 4.2M	32kB	512x8	8	4	8	608	2	5	8,16/32	67/51

[1] under development

Development Tools

E0C88 Series - LCD Simulator

This development tool for the E0C88 Series includes a debugger (simulator) which allows you to debug assembler software by using just a PC - no in-circuit emulator (ICE) or other dedicated hardware is necessary.

In addition to providing general debugger functions, the debugger simulates push-buttons or a key matrix that uses I/O ports and LCD displays. The package includes utilities for creating bitmap and LCD panel data.

ow-Power, Low-Voltage

nt	ext. Bus Line	Features	Package
	4x512kByte	Stopwatchtimer, SupplyVoltageDetection 2ch. A/D Comparator, OSC3max: 8.2MHz SoundGenerator, HighSpeedOperation ClockTimer, Watchdog, SIO, DisplayRAM	80QFP 100QFP Die
	4x512kByte	HighSpeedOperation, Stopwatchtimer, SupplyVoltageDetection Watchdog SoundGenerator, SIO, ClockTimer 2ch. A/D Comparator	160QFP Die
		10 times programmable Prototrypting MCU for E0C88308/317/348 parallel & seriall programming, OSC3 max: 6MHz	160QFP Die
		HighSpeedOperation, Stopwatchtimer, SupplyVoltageDetection Watchdog, 4ch.10bit A/D Converter, Sound Generator, SIO, ClockTimer	176QFP Die
		Dot-Matrix LCD-Driver, DisplayRAM, LCD Voltage Booster SupplyVoltageDetection, SoundGenerator, Watchdog, 2ch. A/D Comp.	Die
	3x4MByte	IrDA-Interface, Built in VRAM, SoundGenerator, SIO, Timer	100QFP, Die
		IrDA-Interface, Built in VRAM, SoundGenerator, SIO, Timer 8ch.10bit A/D Converter 10bit, 2ch. D/A Converter 8bit, Touch-PanelController	
		SED1065 built in, SoundGenerator, SupplyVoltageDetection Watchdog, 10bit A/D Converter,	
	–	HighSpeedOperation, no access to ext. memory 2ch 8bit timer (1ch. 16bit timer) SoundGenerator, Display Memory, Clock Timer HighSpeedOperation, Stopwatchtimer, SupplyVoltageDetection,	128QFP Die
		4ch.10bit A/D Converter, Watchdog, Display Memory SoundGenerator, Clock Timer, Stopwatchtimer, SIO, MelodyGenerator	176QFP Die
	4x512kByte	4ch.10bit A/D Converter, Watchdog, Display Memory SoundGenerator, Clock Timer, Stopwatchtimer, SIO, FlashROM	176QFP Die
	4x512kByte	11k Gates on Board, SoundGenerator, Watchdog Timer, SIO 2ch 8bit timer (1ch. 16bit timer), Dot Matrix LCD, SVD-Circuit	176QFP Die

Built around the E0C88000, EPSON's powerful 8-bit core CPU, the E0C88 series line-up integrates a wide choice of ROM and RAM sizes, LCD Controllers and Drivers, Touch panel controllers, serial ports and other high-performance peripheral circuits into a single chip design. With operating voltages down to 1.8 Volts and clock speeds up to 10MHz, these microcontrollers feature the same ultra low power consumption as normally seen in 4-bit MCUs only. This makes the E0C88 series specially suitable for battery-powered, portable devices where low-current consumption is a key factor.

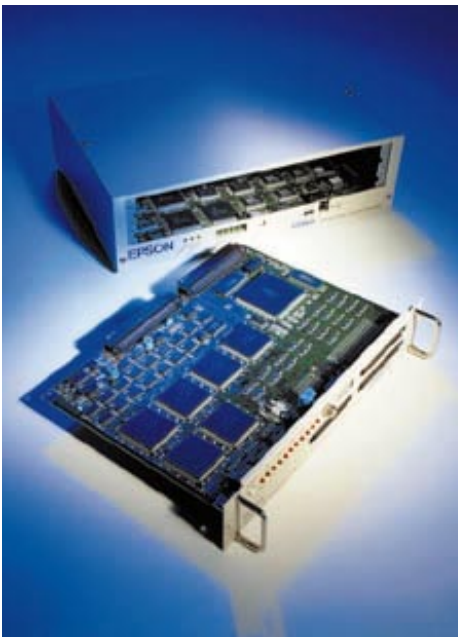
EPSON 8-Bit Microcontroller

Development Tools

Programming with best results

EPSON offers a powerful development environment to realize 8-bit Microcontroller designs with the EPSON E0C88 Series. The development tool consists of the In-Circuit-Emulator ICE88R (ISA-card support) or ICE88UR (USB support). The main unit ICE88R/ICE88UR is combined with a E0C88 Series dedicated PRC88xxx board to plug-in. Furthermore EPSON offers with the E0C88F360 an in-circuit-programmable Flash Memory Microcontroller which allows multiple time programming for prototyping purposes or mass production.

Demonstration Boards with LCD-panels, the software package Tasking© (including C-Compiler and symbolic Debugger) and the new E0C88 Series LCD-Simulator (allowing assembler software debugging using a PC only) complete the EPSON 8-bit Microcontroller development environment and enable to achieve short development time and therefore short time-to-market.



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