



USB Controllers

Universal Serial Bus (USB) is the most common connectivity solution for PCs and consumer devices today. Plug and play, easy to use and simple to implement, USB continues to gain traction in new applications and market segments.

USB Low-Speed Peripherals

The low-speed USB peripheral family offers a broad range of devices that support applications requiring a signaling rate of 1.5Mbps. As an industry leader, Cypress offers powerful, flexible and integrated solutions for a wide range of USB applications. No other USB supplier makes it so easy and inexpensive to design and build USB applications. The low-speed USB controllers feature the industry's smallest 8-bit RISC core that contains RAM, EPROM/Flash, USB Logic and USB transceiver.

This family has three generations of products:

M8™ Series: The world's first integrated low-speed USB microcontroller.

enCoRe™: Enhanced Component Reduction technology reduces system cost through external component integration.

enCoRe™II: The second generation of Enhanced Component Reduction technology, adding flash memory and more integration.

enCoRe™III: Allows for customized peripheral configurations specific to your application, such as upgrading legacy serial interfaces to full-feature USB bridges.

Memory Size	Memory Architecture	Core	Number of Endpoints	Number of I/O	Package	Digi-Key Part No.	Price Each			Cypress Part No.
							1	25	100	
M8™ Series										
4K	EPROM	M8A (8-bit RISC)	2	16	24-QSOP	428-1314-ND	4.23	3.41	3.10	CY7C63101A-QC
4K	EPROM	M8A (8-bit RISC)	2	16	24-QSOP	428-1618-ND	4.23	3.41	3.10	CY7C63101A-QXC
8K	EPROM	M8B (8-bit RISC)	3	32	48-SSOP	428-1319-ND	4.63	3.73	3.40	CY7C63413-PVC
8K	EPROM	M8B (8-bit RISC)	3	32	48-SSOP	428-1852-ND	5.38	4.32	3.94	CY7C63413-PVXC
enCoRe™										
3K	EPROM	M8B (8-bit RISC)	2	10	18-SOIC	428-1719-5-ND	4.15	3.34	3.04	CY7C63231A-SXC
8K	EPROM	M8B (8-bit RISC)	3	10 + 1	18-DIP	428-1854-ND	4.52	3.64	3.32	CY7C63723C-PXC
8K	EPROM	M8B (8-bit RISC)	3	10 + 1	18-SOIC	428-1323-ND	3.91	3.14	2.87	CY7C63723-SXC
8K	EPROM	M8B (8-bit RISC)	3	10 + 1	18-SOIC	428-1855-ND	4.52	3.64	3.32	CY7C63723C-SXC
8K	EPROM	M8B (8-bit RISC)	3	16 + 1	24-DIP	428-1856-ND	4.87	3.92	3.57	CY7C63743C-PXC
8K	EPROM	M8B (8-bit RISC)	3	16 + 1	24-SOIC	428-1622-ND	4.21	3.38	3.08	CY7C63743-SXC
8K	EPROM	M8B (8-bit RISC)	3	16 + 1	24-SOIC	428-1857-ND	4.87	3.92	3.57	CY7C63743C-SXC
enCoRe™II — RoHS Compliant										
3K	Flash	M8C	3	4	16-SOIC	428-2913-5-ND	3.52	2.83	2.58	CY7C63310-SXC
4K	Flash	M8C (8-bit RISC)	3	13	16-SOIC	428-2256-5-ND	3.89	3.14	2.86	CY7C63801-SXC
8K	Flash	M8C	3	4	16-SOIC	428-2914-5-ND	3.65	2.93	2.67	CY7C63803-SXC
8K	Flash	M8C	3	4	18-SOIC	428-2915-5-ND	4.08	3.29	3.00	CY7C63813-SXC
enCoRe™III — RoHS Compliant										
16K	Flash	M8C	5	22	28-SSOP	428-2916-5-ND	5.78	4.65	4.24	CY7C64215-28PVXC

◆ RoHS Compliant § Tube

USB Full-Speed Peripherals



Cypress offers a variety of performance levels and feature sets among its full-speed product families for applications that require USB signal rates of up to 12 Mbps. These offerings include unique architectures that give developers the freedom and flexibility to choose the solution that best fits their needs.

EZ-USB FX1™: Faster, extended technology for ultra high-performance

enCoRe™V: With a Flash size of up to 32K, this is a highly integrated, cost-effective full-speed USB microcontroller solution ideal for applications that require a full-speed USB interface for outstanding performance such as a wired gaming mouse or high-end wireless dongles.

Memory Size	Memory Architecture	Number of I/O	Core	Package	Digi-Key Part No.	Price Each			Cypress Part No.
						1	25	100	
EZ-USB FX1™									
8K	EPROM	19	M8 (8-bit RISC)	28-SOIC	428-1634-ND	6.09	5.00	4.51	CY7C64013A-SXC
8K	EPROM	19	M8 (8-bit RISC)	28-SOIC	428-1847-ND	7.07	5.80	5.24	CY7C64013C-SXC
16K	RAM	24	Enhanced 8051	56-VQFN	428-2929-ND	9.71	7.96	7.19	CY7C64713-56LTXC
16K	RAM	40	Enhanced 8051	100-LQFP	428-1679-ND	10.72	8.79	7.94	CY7C64713-100AXC
16K	RAM	40	Enhanced 8051	128-LQFP	428-1678-ND	11.37	9.32	8.41	CY7C64713-128AXC
enCoRe™V									
16K	Flash	11	M8C	16-UQFN	428-2885-ND	4.52	3.64	3.32	CY7C64315-16LKXC
32K	Flash	11	M8C	16-UQFN	428-2886-ND	5.27	4.25	3.87	CY7C64316-16LKXC
8K	Flash	25	M8C	32-UQFN	428-2964-ND	4.52	3.64	3.32	CY7C64343-32LQXC
16K	Flash	25	M8C	32-UQFN	428-2887-ND	4.90	3.94	3.59	CY7C64345-32LQXC
16K	Flash	36	M8C	48-UQFN	428-2889-ND	5.66	4.55	4.15	CY7C64355-48LTXC
32K	Flash	36	M8C	48-UQFN	428-2890-ND	6.41	5.16	4.70	CY7C64356-48LTXC

USB High-Speed Peripherals



USB 2.0 extends the speed of PC peripheral connectivity up to 480Mbps. USB 2.0 is forward and backward compatible with USB 1.1 and allows customers to utilize USB 1.1 devices they currently own. USB 2.0 speeds have enabled development of high-performance PC peripheral applications and portable consumer devices.

General Purpose Solutions:

EZ-USB SX2™: Intelligent Serial Interface Engine (SIE) automatically handles the low-level USB protocol, shortening the USB learning curve.

EZ-USB FX2LP™: Low Power (Bus Powered) Programmable MCU for bus powered peripherals, pin-for-pin compatible with EZ-USB FX2™.

External Mass Storage Solutions:

EZ-USB AT2LP™: Fixed-function USB-to-PATA Bridge for external HDD and optical drivers

Memory Size	Memory Architecture	Core	Package	Digi-Key Part No.	Price Each			Cypress Part No.
					1	25	100	
EZ-USB SX2™ USB Interface								
—	—	—	56-VQFN	428-2932-ND	13.16	10.79	9.74	CY7C68001-56LTXC
—	—	—	56-SSOP	428-1864-ND	12.40	10.17	9.18	CY7C68001-56PVXC
EZ-USB FX2LP™ USB Microcontroller USB Peripheral Controller								
16K	RAM	Enhanced 8051	56-VQFN	428-2933-ND	12.79	10.49	9.47	CY7C68013A-56LTXC
16K	RAM	Enhanced 8051	100-LQFP	428-1667-ND	15.72	13.23	12.16	CY7C68013A-100AXI
16K	RAM	Enhanced 8051	100-LQFP	428-2263-ND	28.59	24.31	22.52	CY7C68013A-100AXI
16K	RAM	Enhanced 8051	128-LQFP	428-1668-ND	16.66	14.02	12.88	CY7C68013A-128AXC
16K	RAM	Enhanced 8051	128-LQFP	428-1943-ND	30.30	25.76	23.86	CY7C68013A-128AXI
16K	RAM	Enhanced 8051	56-VFBGA	428-2264-ND	18.62	15.66	14.39	CY7C68013A-56BAXC
16K	RAM	Enhanced 8051	56-SSOP	428-1627-ND	14.22	11.96	10.99	CY7C68013A-56PVXC
16K	RAM	Enhanced 8051	56-SSOP	428-1944-5-ND	25.85	21.98	20.37	CY7C68013A-56PVXI
16K	RAM	Enhanced 8051	56-VQFN	428-2934-ND	17.14	14.41	13.24	CY7C68014A-56LTXC
16K	RAM	Enhanced 8051	100-LQFP	428-1670-ND	18.10	15.22	13.99	CY7C68014A-100AXC
16K	RAM	Enhanced 8051	128-LQFP	428-1671-ND	19.18	16.14	14.83	CY7C68014A-128AXC
16K	RAM	Enhanced 8051	56-SSOP	428-1673-ND	16.37	13.77	12.65	CY7C68014A-56PVXC
16K	RAM	Enhanced 8051	56-VQFN	428-2935-ND	15.60	13.13	12.06	CY7C68015A-56LTXC
16K	RAM	Enhanced 8051	56-VQFN	428-2936-ND	17.94	15.10	13.87	CY7C68016A-56LTXC
EZ-USB AT2LP™ USB 2.0 to ATA/ATAPI Bridge								
—	Single Port RAM	—	56-SSOP	428-2266-5-ND	7.29	5.99	5.40	CY7C68300C-56PVXC
—	Single Port RAM	—	100-LQFP	428-2267-ND	13.47	11.05	9.97	CY7C68320C-100AXC
—	Single Port RAM	—	56-VQFN	428-2268-ND	11.78	9.67	8.72	CY7C68320C-56LTXC

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USB Hosts



For the embedded host market, Cypress offers high-performance USB host/peripheral controllers for use in embedded applications such as: PDAs, Set-top boxes, MP3 Players, Personal Media Players and Cell phones. These dual-role devices switch to host mode when connected to a peripheral and to peripheral mode when connected to a PC. In addition, the embedded host/peripheral controllers support both full- and low-speed USB devices in either mode. **EZ-Host™:** Microprocessor-based 4-port embedded host/peripheral controller. **SL811:** Serial Interface Engine (SIE) with 8-bit microprocessor interface.

Memory Architecture	Memory Size	Number of Endpoints	Number of I/O	Package	Digi-Key Part No.	Price Each			Cypress Part No.
						1	25	100	
EZ-Host™									
ROM/RAM	16K	8 in periph. mode	32	100-LQFP	428-1865-ND	17.53	14.74	13.55	CY7C67300-100AXI
SL811									
SRAM	256 Bytes	16 in host mode	8	48-LQFP	428-1721-ND	13.75	11.57	10.63	SL811HST-AXC

USB Hubs



Cypress offers a broad range of full-speed and high-speed hub controllers perfect for all USB-based applications.

The Cypress hub controller portfolio includes both single-TT and multi-TT controllers ranging from 2 - 4 ports.

The Low-Power (LP) family provides industry leading products perfect for bus-powered applications.

Hub Ports	Number of I/O	Memory Architecture	Memory Size	Core	Package	Digi-Key Part No.	Price Each			Cypress Part No.
							1	25	100	
USB Full Speed Hub										
4	11	EPROM	8K	M8 (8-bit RISC)	28-SOIC	428-2259-5-ND	7.04	5.66	5.16	CY7C65113C-SXC
4	29	EPROM	8K	M8 (8-bit RISC)	48-SSOP	428-2261-5-ND	8.06	6.61	5.96	CY7C66013C-PVXC
NEW! EZ-USB HX2LP™ NEW!										
2	8	—	—	—	56-VQFN	428-2930-ND	8.39	6.88	6.21	CY7C65620-56LTXC
4	8	—	—	—	56-VQFN	428-3009-ND	9.82	8.06	7.27	CY7C65630-56LTXC
NEW! USB TetraHub™ NEW!										
4	8	—	—	—	56-VQFN	428-2931-ND	13.35	10.95	9.89	CY7C65640A-LTXC

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NEW! Wireless Microcontrollers and Network Processor



Cypress offers a line of low-power, 8-bit microcontrollers that are ideal for wireless HID applications. The devices feature the industry's smallest 8-bit RISC core with flash memory and a variety of internal peripheral functions.

RAM Size	Memory Size	Memory Architecture	Core	Number of I/O	Voltage	Package	Digi-Key Part No.	Price Each			Cypress Part No.
								1	25	100	
512B	8K	Flash	Pipeline	28	2.4 - 3.6	32-VQFN	428-2939-ND	4.08	3.29	3.00	CY7C60323-LTXC
512B	8K	Flash	Pipeline	26	2.4 - 3.6	32-VQFN	428-2940-ND	4.08	3.29	3.00	CY7C60333-LTXC
1K	8K	Flash	Pipeline	13	1.71 - 3.6	16-UQFN	428-2963-ND	3.46	2.78	2.54	CY7C60413-16LKXC
512B	2K	Flash	Pipeline	19	4.5 - 5.5	64-LQFP	428-2912-ND	7.55	6.19	5.59	CY7C53150-20AXI

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