The innovation leader in microcontrollers

LPC2000 Series

The 32-bit LPC2000 series is based on an ARM7TDMI-S core operating at up to 75 MHz together with a wide range of peripherals including multiple serial interfaces, USB, 10-bit ADC, DAC and external bus options. These controllers are designed for use in a range of applications including industrial control, automotive, medical, connectivity, and any other general purpose embedded applications requiring high performance and low power consumption in a cost-effective package.

	Memory				Timers		Serial Interfaces					Analog											
Type	FLASH	RAM	ISP/IAP	Program Security	# of Timers*	PWM ch.	USB	UART	I²C	CAN	SPI	ADC (10b) # of channels	DAC (10b) # of channels	I/O pins	Interrupts (Ext) / Levels	External Bus Interface	PLL	Max. frq (MHz)	CPU Voltage	I/O Voltage	Temp. range options	Package	Comments / Special Features
LPC2200 Devices																							
LPC2294	256 K	16 K	Y/Y	•	4	6		2	•	4	2	8		112	25(4)/16	•	•	60	1.8 V	3.3 V	H, J	LQFP144	LPC2214 upgrade w/ 4x CAN
LPC2292	256 K	16 K	Y/Y	•	4	6		2	•	2	2	8		112	25(4)/16	•	•	60	1.8 V	3.3 V	F	LQFP144	LPC2214 upgrade w/ 2x CAN
LPC2290		16 K			4	6		2	•	2	2	8		76	25(4)/16	•	•	60	1.8 V	3.3 V	F	LQFP144, TFBGA144	ROMless version of LPC2292
LPC2220		64 K		•	4	6		2	•		2	8		76	16(4)/16	•	•	75	1.8 V	3.3 V	F	LQFP144, TFBGA144	64 K RAM version of LPC2210
LPC2214	256 K	16 K	Y/Y	•	4	6		2	•		2	8		112	16(4)/16	•	•	60	1.8 V	3.3 V	F	LQFP144	External Bus, 4 Chip Selects, 10-bit SA ADC, 256 K Flash
LPC2212	128 K	16 K	Y/Y	•	4	6		2	•		2	8		112	16(4)/16	•	•	60	1.8 V	3.3 V	F	LQFP144	128 K Flash version of LPC2214
LPC2210		16 K			4	6		2	•		2	8		76	16(4)/16	•	•	60	1.8 V	3.3 V	F	LQFP144	ROMless version of LPC2214
LPC2100 Devices																							
LPC2194	256 K	16 K	Y/Y	•	4	6		2	•	4	2	4		46	25(4)/16		•	60	1.8 V	3.3 V	H, J	LQFP64	LPC21x4 upgrade w/ 4x CAN
LPC2148	512 K	40 K	Y/Y	•	4	6	•	2	2		2	8+6	1	45	23(4)/16		•	60		3.3 V	F	LQFP64	LPC2138 plus USB 2.0 full speed and Fast I/Os
LPC2146	256 K	40 K	Y/Y	•	4	6	•	2	2		2	8+6	1	45	23(4)/16		•	60		3.3 V	F	LQFP64	LPC2136 plus USB 2.0 full speed and Fast I/Os
LPC2144	128 K	16 K	Y/Y	•	4	6	•	2	2		2	8+6	1	45	23(4)/16		•	60		3.3 V	F	LQFP64	LPC2134 plus USB 2.0 full speed and Fast I/Os
LPC2142	64 K	16 K	Y/Y	•	4	6	•	2	2		2	6	1	45	23(4)/16		•	60		3.3 V	F	LQFP64	LPC2132 plus USB 2.0 full speed and Fast I/Os
LPC2141	32 K	8 K	Y/Y	•	4	6	•	2	2		2	6		45	23(4)/16		•	60		3.3 V	F	LQFP64	LPC2131 plus USB 2.0 full speed and Fast I/Os
LPC2138	512 K	32 K	Y/Y	•	4	6		2	2		2	2x8	1	47	22(4)/16		•	60		3.3 V	F	LQFP64, HVQFN64	Dual 8 ch. 10-bit ADC, BOD, POR, 32 kHz XTAL input, VBAT
LPC2136	256 K	32 K	Y/Y	•	4	6		2	2		2	2x8	1	47	22(4)/16		•	60		3.3 V	F	LQFP64	Dual 8 ch. 10-bit ADC, BOD, POR, 32 kHz XTAL input, VBAT
LPC2134	128 K	16 K	Y/Y	•	4	6		2	2		2	2x8	1	47	22(4)/16		•	60		3.3 V	F	LQFP64	Ch. 10-bit ADC, BOD, POR, 32 kHz XTAL input, V BAT
LPC2132	64 K	16 K	Y/Y	•	4	6		2	2		2	8	1	47	22(4)/16		•	60		3.3 V	F	LQFP64, HVQFN64	Ch. 10-bit ADC, BOD, POR, 32 kHz XTAL input, V BAT
LPC2131	32 K	8 K	Y/Y	•	4	6		2	2		2	8		47	22(4)/16		•	60		3.3 V	F	LQFP64	Ch. 10-bit ADC, BOD, POR, 32 kHz XTAL input, V BAT
LPC2129	256 K	16 K	Y/Y	•	4	6		2	•	2	2	4		46	18(4)/16		•	60	1.8 V	3.3 V	F	LQFP64	LPC21x4 upgrade w/ 2x CAN
LPC2119	128 K	16 K	Y/Y	•	4	6		2	•	2	2	4		46	18(4)/16		•	60	1.8 V	3.3 V	F	LQFP64	LPC21x4 upgrade w/ 2x CAN
LPC2124	256 K	16 K	Y/Y	•	4	6		2	•		2	4		46	16(4)/16		•	60	1.8 V	3.3 V	F	LQFP64, HVQFN64	10-bit SA ADC, 2x SPI and 128 K / 256 K Flash; JTAG; ETM; 5 V tol I/O
LPC2114	128 K	16 K	Y/Y	•	4	6		2	•		2	4		46	16(4)/16		•	60	1.8 V	3.3 V	F	LQFP64	10-bit SA ADC, 2x SPI and 128 K / 256 K Flash; JTAG; ETM; 5 V tol I/O
LPC2106	128 K	64 K	Y/Y		4	6		2	•		•			32	16(3)/16		•	60	1.8 V	3.3 V	B, F	LQFP48	0 Waitstate exec. from int. Flash; no ext. bus; 5V tolerant I/O
LPC2105	128 K	32 K	Y/Y		4	6		2	•		•			32	16(3)/16		•	60	1.8 V	3.3 V	B	LQFP48	32 K RAM version of LPC2106
LPC2104	128 K	16 K	Y/Y		4	6		2	•		•			32	16(3)/16		•	60	1.8 V	3.3 V	B	LQFP48	16 K RAM version of LPC2106
LPC2103	32 K	8 K	Y/Y	•	6	14**		2	2		2	8		32	19(3)/16		•	70	1.8 V	3.3 V	F	LQFP48	Lowest cost, lowest power, ADC
LPC2102	16 K	4 K	Y/Y	•	6	14**		2	2		2	8		32	19(3)/16		•	70	1.8 V	3.3 V	F	LQFP48	16K Flash, 4K RAM version of LPC2103
LPC2101	8 K	2 K	Y/Y	•	6	14**		2	2		2	8		32	19(3)/16		•	70	1.8 V	3.3 V	F	LQFP48	8K Flash, 2K RAM version of LPC2103

Note: Reset active low. * Includes WD and RTC. ** Using timers 0-3.

October 2005

PHILIPS

LPC900 Series

The LPC900 series are single-chip microcontrollers designed for applications demanding high-integration, low cost solutions over a wide range of performance requirements. Many system-level functions have been incorporated into this family in order to reduce component count, board space and system cost.

	Memory						Timers			Serial Interfaces			Analog										
Type	FLASH / EEPROM (Program / Data)	EEPROM (data)	RAM	ICP / PP	ISP / IAP	Program Security	Total # of Timers	PWM	RTC / System Timer / WD	UART	I²C	SPI	ADC ch. / Resolution	DAC ch. / Resolution	Comparators	I/O pins	Interrupts (Ext.) / Levels	Clocks / CPU cycle	Freq. range (MHz) at 3 V	Temp. range options	Package	Comments / Special Features
LPC94x Devices																						
P89LPC9408	8 K	512 B	768 B	Y/Y	Y/Y	•	5	CCU	•	•	•	•	8/10b		2	23	15(3)/4	2	0-18	F	LQFP64	LPC938 with integrated PCF8576D universal LCD driver
P89LPC9401	4 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•	•			2	23	13(3)/4	2	0-18	F	LQFP64	LPC931 with integrated PCF8576D universal LCD driver
LPC95x Devices																						
P89LPC952	8 K		512 B	Y/Y	Y/Y	•	4	2 ch.	•	2	•	•	8/10b		2	42	17(3)/4	2	0-18	F	PLCC44, LQFP48	LPC900 in 44/48-pin package; 2 UARTs; JTAGport
LPC93x Devices																						
P89LPC938	8 K	512 B	768 B	Y/Y	Y/Y	•	5	CCU	•	•	•	•	8/10b		2	26	15(3)/4	2	0-18	F	TSSOP28, HVQFN28, PLCC28	LPC935 with 10-bit ADC
P89LPC936	16 K	512 B	768 B	Y/Y	Y/Y	•	5	CCU	•	•	•	•	2x4/8b	2x8b	2	26	15(3)/4	2	0-18	F	TSSOP28	LPC935 with 16 KFlash
P89LPC935	8 K	512 B	768 B	Y/Y	Y/Y	•	5	CCU	•	•	•	•	2x4/8b	2x8b	2	26	15(3)/4	2	0-18	F	TSSOP28, PLCC28, HVQFN28	LPC932A1 + two 4-ch 8-bit ADCs / two 8-bit DACs
P89LPC934	8 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•	•	4/8b	2x8b	2	26	15(3)/4	2	0-18	F	TSSOP28	LPC930/931 + 4-ch 8-bit ADCs / two 8-bit DACs
P89LPC933	4 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•	•	4/8b	2x8b	2	26	15(3)/4	2	0-18	F	TSSOP28	LPC930/931 + 4-ch 8-bit ADCs / two 8-bit DACs
P89LPC932A1	8 K	512 B	768 B	Y/Y	Y/Y	•	5	CCU	•	•	•	•			2	26	15(3)/4	2	0-18	F	TSSOP28, PLCC28, HVQFN28	Dedicated EEPROM; ± 2.5% int. RC osc. (7.3728 MHz) byte erasable Flash
P89LPC9311	8 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•	•			2	26	13(3)/4	2	0-18	F	TSSOP28	LPC931 with 8 high-drive pins (20 mA)
P89LPC931	8 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•	•			2	26	13(3)/4	2	0-18	F	TSSOP28	4K / 8K Flash versions of LPC932A1 w/o EEPROM, w/o CCU, w/o XRAM
P89LPC930	4 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•	•			2	26	13(3)/4	2	0-18	F	TSSOP28	4K / 8K Flash versions of LPC932A1 w/o EEPROM, w/o CCU, w/o XRAM
LPC92x Devices																						
P89LPC925	8 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•		4/8b	1/8b	2	18	12(3)/4	2	0-18	F	TSSOP20	LPC921/922 + 4-ch 8-bit ADC / 8-bit DAC; runs up to 18 MHz
P89LPC924	4 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•		4/8b	1/8b	2	18	12(3)/4	2	0-18	F	TSSOP20	LPC921/922 + 4-ch 8-bit ADC / 8-bit DAC; runs up to 18 MHz
P89LPC9221	8 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•				2	18	12(3)/4	2	0-18	F	TSSOP20, DIP20	LPC922 with 8 high-drive pins (20 mA)
P89LPC922	8 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•				2	18	12(3)/4	2	0-18	F	TSSOP20, DIP20	20-pin versions of LPC930/931 w/o SPI; LPC76x pin-comp. upgrade
P89LPC921	4 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•				2	18	12(3)/4	2	0-18	F	TSSOP20	20-pin versions of LPC930/931 w/o SPI; LPC76x pin-comp. upgrade
P89LPC920	2 K		256 B	Y/Y	Y/Y	•	4	2 ch.	•	•	•				2	18	12(3)/4	2	0-18	F	TSSOP20	2K Flash version of 921/922
LPC91x Devices																						
P89LPC917	2 K		256 B	Y/–	– /–	•	4	2 ch.	•	•	•		4/8b	1/8b	2	14	13(3)/4	2	0-18	F	TSSOP16	4-ch 8-bit ADC / 8-bit DAC; 2 serial channels; 2-ch 8-bit PWM
P89LPC916	2 K		256 B	Y/–	– /–	•	4	1 ch.	•	•	•	•	4/8b	1/8b	2	14	14(2)/4	2	0-18	F	TSSOP16	4-ch 8-bit ADC / 8-bit DAC; 3 serial channels; 1-ch 8-bit PWM
P89LPC915	2 K		256 B	Y/–	– /–	•	4	1 ch.	•	•	•		4/8b	1/8b	2	12	13(3)/4	2	0-18	F, H	TSSOP14	4-ch 8-bit ADC / 8-bit DAC; 2 serial channels; 1-ch 8-bit PWM
P89LPC914	1 K		128 B	Y/–	– /–	•	4	1 ch.	•	•		•			2	12	10(1)/4	2	0-IRC	F	TSSOP14	1-ch 8-bit PWM; UART; SPI; 12 I/O pins
P89LPC913	1 K		128 B	Y/–	– /–	•	4		•	•		•			2	12	10(1)/4	2	0-18	F	TSSOP14	UART; SPI; 12 I/O pins; external crystal pins
P89LPC912	1 K		128 B	Y/–	– /–	•	4	1 ch.	•			•			2	12	7(1)/4	2	0-18	F	TSSOP14	1-ch 8-bit PWM; SPI; 12 I/O pins; external crystal pins
LPC910x Devices																						
P89LPC9107	1 K		128 B	Y/–	– /–	•	4	2 ch.	•	•			4/8b	1/8b	1	10	9(1)/4	2	0-18	F	TSSOP14	Clock doubler for internal RC OSC
P89LPC9103	1 K		128 B	Y/–	– /–	•	4		•	•			4/8b	1/8b	1	8	9(1)/4	2	0-18	F	HVSON10	Smallest available package 3 x 3 mm²
P89LPC9102	1 K		128 B	Y/–	– /–	•	4	2 ch.	•				4/8b	1/8b	1	8	9(1)/4	2	0-18	F	HVSON10	Smallest available package 3 x 3 mm²
LPC90x Devices																						
P89LPC908	1 K		128 B	Y/–	– /–	•	4		•	•					1	6	9(1)/4	2	0-IRC	F	SO8	UART; 6 I/O pins
P89LPC907	1 K		128 B	Y/–	– /–	•	4		•	•*					1	6	8(1)/4	2	0-IRC	F	SO8	UART (*Transmit function only); 6 I/O pins
P89LPC906	1 K		128 B	Y/–	– /–	•	4	1 ch.	•						1	6	6(1)/4	2	0-18	F	SO8	1-ch 8-bit PWM; 6 I/O pins; external crystal pins
P89LPC903	1 K		128 B	Y/–	– /–	•	4		•	•					2	6	9(1)/4	2	0-IRC	F	SO8	Industry standard pinout; 6 I/O pins; 2 analog comparators; UART
P89LPC902	1 K		128 B	Y/–	– /–	•	4		•						2	6	6(1)/4	2	0-IRC	F	SO8, DIP8	Industry standard pinout; 6 I/O pins; 2 analog comp. 5 ext. interrupt inputs
P89LPC901	1 K		128 B	Y/–	– /–	•	4	1 ch.	•						1	6	6(1)/4	2	0-18	F	SO8, DIP8	Industry standard pinout; 6 I/O pins; 1-ch 8-bit PWM; external crystal pins

Notes:

1. LPC900 FLASH EEPROM Features: Program and data (byte) storage, block-/sector-/page-/byte-erasable, 2 ms erase, data read via MOVC instruction.
2. Auxiliary EEPROM Features: Data (byte) storage, page-/byte-erasable, 2 ms erase.
3. Reset active low.

LPC700 Series

The LPC700 series is based on a high performance 6-clock 80C51 that executes instructions at twice the rate of the standard 80C51. A wide variety of system supervisory functions, serial interfaces and analog options have been incorporated into low profile SO and TSSOP packages in order to reduce component count, board space and system cost. The LPC700 family is designed for applications that demand low voltage, high-integration, and low-cost.

	Memory			Timers			Serial Interfaces		Analog															
Type	OTP / ROM	RAM	ICP / PP	# of Timers	PWM	WD	UART	I²C	ADC ch. / bits	Comparators	I/O pins	Interrupts (Ext.) Levles	Program Security	Default Clock Rate	Optional Clock Rate	Reset Active (low or high)	Max. Freq. (MHz)	Freq. Range (MHz) at 3V	Freq. Range (MHz) at 5V	Temp. Range Options	Package	Comments / Special Features
LPC76x / LPC77x Devices																						
P87LPC779	8 K	128 B	ICP	2		•	•	• (bit)	4/8	2	18	13(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	B, F	TSSOP20	LPC769 upgrade w/ 8 K OTP; addit. 128 B of RAM not supported by emulators.
P87LPC778	8 K	128 B	ICP	2	•	•	•	• (bit)	4/8	2	18	13(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	B, F	TSSOP20	LPC768 upgrade w/ 8 K OTP; addit. 128 B of RAM not supported by emulators.
P87LPC769	4 K	128 B	ICP	2		•	•	• (bit)	4/8	2	18	13(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	H	SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 25%), 4ch 8-bit ADC, 2ch 8-bit DAC
P87LPC768	4 K	128 B	ICP	2	•	•	•	• (bit)	4/8	2	18	13(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	B, F	DIP20, SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 25%), 4ch 8-bit ADC, PWM
P87LPC767	4 K	128 B	ICP	2		•	•	• (bit)	4/8	2	18	13(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	B, F, H	DIP20, SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 25%), 4ch 8-bit ADC
P87LPC764	4 K	128 B	ICP	2		•	•	• (bit)		2	18	12(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	B, F	TSSOP20, DIP20, SO20	2 AC, BOD, POR, 8KBI's, IRC (6 MHz ± 10% / ± 25%)
P87LPC762	2 K	128 B	ICP	2		•	•	• (bit)		2	18	12(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	B, F	TSSOP20, DIP20, SO20	2 AC, BOD, POR, 8KBI's, IRC (6 iMHz ± 10% / ± 25%)
P87LPC761	2 K	128 B	ICP	2		•	•	• (bit)		2	14	11(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	B	TSSOP16, DIP16	16-pin LPC derivative; ± 2.5% internal RC Oscillator (0-50°C)
P87LPC760	1 K	128 B	ICP	2		•	•	• (bit)		2	12	11(3)/4	•	6-clk	12-clk	L	20	0-10	0-20	B	TSSOP14, DIP14	14-pin LPC derivative; ± 2.5% internal RC Oscillator (0-50°C)

80C51 Family

The Philips 8-bit 80C51 microcontroller family offers a complete product portfolio of Flash, OTP (One Time Programmable), ROM and ROMless devices. Designed for real-time applications, these 80C51 devices are used in broad markets ranging from consumer products and computer peripherals to automotive systems.

	Memory					Timers				Serial Interfaces															
Type	FLASH	OTP / ROM	RAM	ICP / PP	ISP / IAP	# of Timers	PWM	RTC / System Timerr	WD	UART	I²C	SPI	ADC ch. / bits	I/O Pins	Interrupts (Ext.) Levles	Program Security	Default Clock Rate	Optional Clock Rate	Reset Active (low or high)	Max. Freq. (MHz)	Freq. Range (MHz) at 3V	Freq. Range (MHz) at 5V	Temp. Range Options	Package	Comments / Special Features
66x Devices																									
P89C669	96 K		2 K	– /Y	Y/Y	4	•	•	•	2	•			32	13(2)/4	•	6-clk		H	24/–		0-24	B	PLCC44	51MX core, 16 MB data/code addr. range; 2 UARTs, I²C, no P4
P89C668	64 K		8 K	– /Y	Y/Y	4	•	•	•	•	•			32	8(2)/4	•	6-clk	12-clk	H	20/33		0-20/33	B, F	PLCC44, LQFP44	6-clk default, 12-clk option; 5V ISP/IAP Flash
P89C664	64 K		2 K	– /Y	Y/Y	4	•	•	•	•	•			32	8(2)/4	•	6-clk	12-clk	H	20/33		0-20/33	B, F	PLCC44, LQFP44	6-clk default, 12-clk option; 5 V ISP/IAP Flash
P89C662	32 K		1 K	– /Y	Y/Y	4	•	•	•	•	•			32	8(2)/4	•	6-clk	12-clk	H	20/33		0-20/33	B, F	PLCC44, LQFP44	6-clk default, 12-clk option; 5 V ISP/IAP Flash
P89C660	16 K		512 B	– /Y	Y/Y	4	•	•	•	•	•			32	8(2)/4	•	6-clk	12-clk	H	20/33		0-20/33	B, F	PLCC44, LQFP44	6-clk default, 12-clk option; 5 V ISP/IAP Flash
66xX2 Devices																									
P87C661X2		16 K	512 B	– /Y		4	•	•	•	•	2			32	9(2)/4	•	12-clk	6-clk	H	30/33	0-30/33	0-30/33	B	PLCC44, LQFP44	87C660X2 with two I²C interfaces
P87C660X2		16 K	512 B	– /Y		4	•	•	•	•	•			32	8(2)/4	•	12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	PLCC44, LQFP44	OTP version of 89C660; 12-clk default, 6-clk option
Mx2 Devices																									
P87C51MC2/02		96 K	3 K	– /Y		4		•	•	2		•		34	13(2)/4	•	6-clk		H	24	0-12	0-24	B	PLCC44	16 MB data/code addr. range; 2 UARTs, SPI , P4 I/O
P87C51MB2/02		64 K	2 K	– /Y		4		•	•	2		•		34	13(2)/4	•	6-clk		H	24	0-12	0-24	B	PLCC44	16 MB data/code addr. range; 2 UARTs, SPI, P4 I/O

Acronym Legend:

IAP In-Application Programmable Flash
ISP In-System Progrogrammable Flash
PP Parallel Programmable Flash (via parallel programer)
OTP One-Time Programmable (EPROM)
ICP In-Circuit Programmable (using off-board programmer)
POR Power-On Reset
KBI Keyboard Interrupt Inputs
BOD Brown-out detect
I²C Inter-Integrated Circuit Bus
CAN Controller Area Network
PCA Programmable Counter Array
ADC Analog-to-Digital Converter
DAC Digital-to-Analog Converter
PWM Pulse Width Modulation
AC Analog Comparator

Temperature Legend:

B 0 to +70°C
F –40 to +85°C
H –40 to +125°C
J –40 to +105°C.

Not all package/temperature/voltage/frequency combinations are available. For most parts "3 V" voltage range is 2.7 V to 5.5 V and "5 V" voltage range is 4.5 V to 5.5 V. Check data sheet for details.

80C51 Family (continued)

Type	Memory: FLASH	Memory: OTP / ROM	Memory: RAM	Memory: ICP / PP	Memory: ISP / IAP	Timers: # of Timers	Timers: PWM	Timers: RTC / System Timerr	Timers: WD	Serial Interfaces: UART	Serial Interfaces: I²C	Serial Interfaces: SPI	ADC ch. / bits	I/O Pins	Interrupts (Ext.) Levles	Program Security	Default Clock Rate	Optional Clock Rate	Reset Active (low or high)	Max. Freq. (MHz)	Freq. Range (MHz) at 3V	Freq. Range (MHz) at 5 V	Temp. Range Options	Package	Comments / Special Features
Rx2 Devices																									
P89LV51RD2	64 K		1 K	– /Y	Y/Y	4	•	•	•	•		•		32	7(2)/4	•	12-clk	6-clk	H	16/33	0-16/33		B, F	DIP40, PLCC44, LQFP44	Operating Voltage 3 V ± 10%
P89LV51RC2	32 K		1 K	– /Y	Y/Y	4	•	•	•	•		•		32	7(2)/4	•	12-clk	6-clk	H	16/33	0-16/33		B, F	DIP40, PLCC44, LQFP44	Operating Voltage 3 V ± 10%
P89LV51RB2	16 K		1 K	– /Y	Y/Y	4	•	•	•	•		•		32	7(2)/4	•	12-clk	6-clk	H	16/33	0-16/33		B, F	DIP40, PLCC44, LQFP44	Operating Voltage 3 V ± 10%
P89V51RD2	64 K		1 K	– /Y	Y/Y	4	•	•	•	•		•		32	7(2)/4	•	12-clk	6-clk	H	20/40		0-20/40	B, F	DIP40, PLCC44, LQFP44	Operating Voltage 5 V ± 10%
P89V51RC2	32 K		1 K	– /Y	Y/Y	4	•	•	•	•		•		32	7(2)/4	•	12-clk	6-clk	H	20/40		0-20/40	B, F	DIP40, PLCC44, LQFP44	Operating Voltage 5 V ± 10%
P89V51RB2	16 K		1 K	– /Y	Y/Y	4	•	•	•	•		•		32	7(2)/4	•	12-clk	6-clk	H	20/40		0-20/40	B, F	DIP40, PLCC44, LQFP44	Operating Voltage 5 V ± 10%
P89C51RD2/01	64 K		1 K	– /Y	Y/Y	4	•	•	•	•				32	7(2)/4	•	12-clk	6-clk	H	20/33		0-20/33	B, F	DIP40, PLCC44, LQFP44	12-clk default, 6-clk option; 5 V ISP/IAP Flash, 4K blocks
P87C51RD2		64 K	1 K	– /Y		4	•	•	•	•				32	7(2)/4	•	12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	DIP40, PLCC44, LQFP44	RD2 in OTP
P89C51RC2/01	32 K		512 B	– /Y	Y/Y	4	•	•	•	•				32	7(2)/4	•	12-clk	6-clk	H	20/33		0-20/33	B, F	DIP40, PLCC44, LQFP44	12-clk default, 6-clk option; 5 V ISP/IAP Flash, 4K blocks
P87C51RC2		32 K	512 B	– /Y		4	•	•	•	•				32	7(2)/4	•	12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	DIP40, PLCC44, LQFP44	RC2 in OTP
P89C51RB2/01	16 K		512 B	– /Y	Y/Y	4	•	•	•	•				32	7(2)/4	•	12-clk	6-clk	H	20/33		0-20/33	B	PLCC44, LQFP44	12-clk default, 6-clk option; 5 V ISP/IAP Flash, 4K blocks
P87C51RB2		16 K	512 B	– /Y		4	•	•	•	•				32	7(2)/4	•	12-clk	6-clk	H	30/33	0-16	0-30/33	B	DIP40, PLCC44, LQFP44	RB2 in OTP
P89C51RA2/01	8 K		512 B	– /Y	Y/Y	4	•	•	•	•				32	7(2)/4	•	12-clk	6-clk	H	20/33		0-20/33	B	PLCC44, LQFP44	12-clk default, 6-clk option; 5V ISP/IAP Flash, 4K blocks
P87C51RA2		8 K	512 B	– /Y		4	•	•	•	•				32	7(2)/4	•	12-clk	6-clk	H	30/33	0-16	0-30/33	B	PLCC44, LQFP44	RA2 in OTP
55x Devices																									
P8xC552		8 K	256 B	– /Y		3	•		•	•	•		8/10	48	15(6)/4	•	12-clk		H	– /24	0-16	3.5-24	B, F, H	PLCC68,QFP80	
P8xC554		16 K	512 B	– /Y		3	•		•	•	•		8/10	48	15(6)/4	•	12-clk		H	– /16	0-16	0-16	B, F	PLCC68	12-clk only; PLCC68 only; 8 ADC channels
P8xC554		16 K	512 B	– /Y		3	•		•	•	•		7/10	48	15(6)/4	•	6-clk		H	16/–	0-8	0-16	B, F	LQFP64	6-clk only; LQFP64 only; 7 ADC channels
80C51X2 Devices																									
P89C6xX2	64 K		512 B /1 K	– /Y	Y/–	3			•	•				32	6(2)/4		12-clk	6-clk	H	20/33		0-20/33	B	PLCC44, LQFP44	89C58 upgrade w/low-end ISP
P8xC58X2	32 K	32 K	256 B	– /Y		3				•				32	6(2)/4		12-clk	6-clk	H	20/33	0-16	0-20/33	B, F	DIP40, PLCC44, LQFP44	5 V Flash/OTP part; 12-clk def., 6-clk opt. (switch by SW or par. progr.)
P8xC54X2	16 K	16 K	256 B	– /Y		3				•				32	6(2)/4		12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	DIP40, PLCC44, LQFP44	5 V Flash/OTP part; 12-clk def., 6-clk opt. (switch by SW or par. progr.)
P8xC52X2	8 K	8 K	256 B	– /Y		3				•				32	6(2)/4		12-clk	6-clk	H	20/33		0-20/33	B, F	DIP40, PLCC44, LQFP44	5 V Flash/OTP part; 12-clk def., 6-clk opt. (switch by SW or par. progr.)
P8xC51X2	4 K	4 K	128 B	– /Y		3				•				32	6(2)/4		12-clk	6-clk	H	20/33	0-16	0-20/33	B, F	DIP40, PLCC44, LQFP44	5 V Flash/OTP part; 12-clk def., 6-clk opt. (switch by SW or par. progr.)
P80C32X2			256 B			3				•				32	6(2)/4		12-clk	6-clk	H	30/33	0-16	0-30/33	B, F	DIP40, PLCC44	ROMless part; 12-clk default, 6-clock option (switch by SW)
P80C31X2			128 B			3				•				32	6(2)/4		12-clk	6-clk	H	30/33	0-16	0-30/33	B	DIP40, PLCC44, LQFP44	ROMless part; 12-clk default, 6-clock option (switch by SW)
CAN Devices																									
P8xC591		16 K	512 B	– /Y		3	•		•	•	•		6/10	32	15(6)/4		6-clk		L	12/–		0-12	F	PLCC44, PQFP44	CAN 2.0B, baud rate generator for UART
P8xC592		16 K	512 B	– /Y		3	•		•	•			8/10	48	15(6)/2		12-clk		H	– /16		1.2-16	F, H	PLCC68	CAN V2.0A, five 8-bit I/O ports
P8xCE598		16 K	512 B	– /Y		3	•		•	•			8/10	48	15(6)/2		12-clk		H	– /16		1.2-16	F, H	QFP80	CAN V2.0A, five 8-bit I/O ports, "E"=lower EMI (more Vss pins)
Rx+ Device																									
P8xC51Rx+		16-64 K	512 B /1 K	– /Y		4								32	7(2)/4		12-clk		H	– /33	0-16	0-33	B, F	DIP40, PLCC44, QFP44	Please use 8xC51RD2 /01 for new designs
Fx Devices																									
P8xC51Fx		8-32 K	256 B	– /Y		4								32	7(2)/4		12-clk		H	– /33	0-16	0-33	B, F	DIP40, PLCC44, QFP44	Please use 8xC51RD2 /01 for new designs

Date of release: September 2005 Document order number: 9397 750 15253 Published in USA