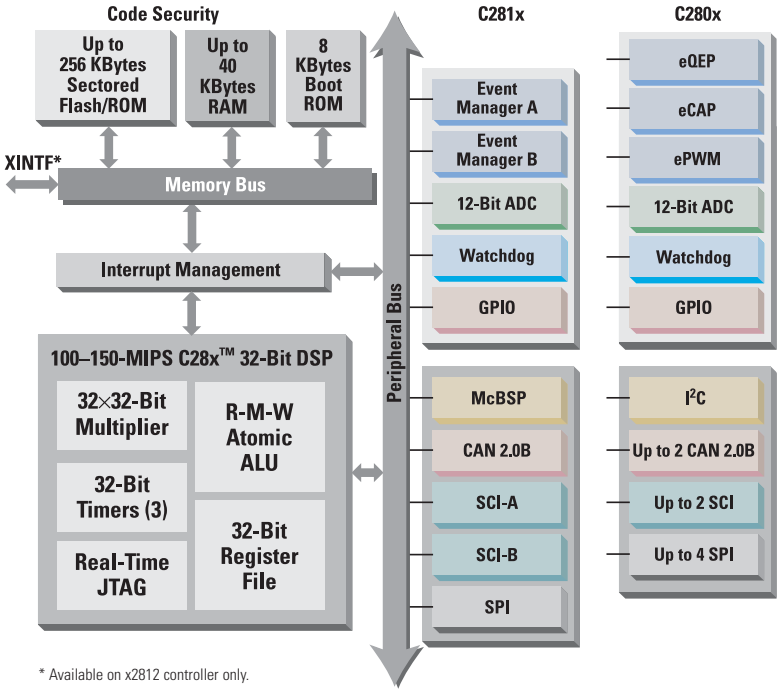
TMS320C2000™ Digital Signal Controller Platform: DSP Performance. MCU-Like Control.

The code-compatible TMS320C2000 digital signal controller platform is optimized for control applications that require MCU peripheral integration and ease-of-use combined with the performance and C-efficiency of TI's leading DSP technology. Solutions range from sub $2.00 to 150 MIPS.

TMS320C28x™ Digital Signal Controller Generation Block Diagram



* Available on x2812 controller only.

TMS320C2000 Digital Signal Controller Generation Comparison

Parametric	C28x™ Fixed-Point Controllers	C24x™ Fixed-Point Controllers
MHz	100–150	40
MIPS	100–150	40
Architecture	32-bit fixed point	16-bit fixed point
Flash/ROM Memory	32–256 kB	12–64 kB
RAM	12–40 kB	Up to 5 kB
ADC	12-bit, as fast as 80 ns	10-bit, as fast as 375 ns
Peripherals	SCI, SPI, dual CAN, McBSP, I²C	SCI, SPI, CAN
Event Manager	Up to: 16 PWM, 15 timers, 56 GPIO, 6 CAP/2 QEP	Up to: 16 PWM, 4 timers, 6 CAP/2 QEP
Pricing (1 KU)	$3.98–15.65	$1.99–8.83

TMS320C28x™ Controller Generation

Device[2]	MIPS	Boot ROM	RAM	Flash/ ROM	Timers	CAP/ QEP	# Channels	# HiRes PWM	12-Bit A/D Chs/ Conversion Time (ns)	EMIF	WD Timer	Comm Ports: Other	Comm Ports: SPI	Comm Ports: SCI	Comm Ports: CAN	I/O Pins	Core Voltage (V)	Packaging	1 KU ($U.S.)[1]
Flash Devices																			
TMS320**F2801**-PZA/S/Q[2]	100	8 KB	12 KB	32 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 LQFP	5.79
TMS320**F2801**-GGMA/S[2,3]	100	8 KB	12 KB	32 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 BGA	5.79
TMS320**F2801**-ZGMA/S[2]	100	8 KB	12 KB	32 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 BGA	5.79
TMS320**F2802**-PZA/S/Q[2]	100	8 KB	12 KB	64 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 LQFP	7.10
TMS320**F2802**-GGMA/S[2,3]	100	8 KB	12 KB	64 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 BGA	7.10
TMS320**F2802**-ZGMA/S[2]	100	8 KB	12 KB	64 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 BGA	7.10
TMS320**F2806**-PZA/S/Q[2]	100	8 KB	20 KB	64 KB	15	4/2	12 + 4	4	16 ch/160	–	Y	I²C	4	2	1	35	1.8	100 LQFP	8.69
TMS320**F2806**-GGMA/S[2,3]	100	8 KB	20 KB	64 KB	15	4/2	12 + 4	4	16 ch/160	–	Y	I²C	4	2	1	35	1.8	100 BGA	8.69
TMS320**F2806**-ZGMA/S[2]	100	8 KB	20 KB	64 KB	15	4/2	12 + 4	4	16 ch/160	–	Y	I²C	4	2	1	35	1.8	100 BGA	8.69
TMS320**F2808**-PZA/S/Q[2]	100	8 KB	36 KB	128 KB	15	4/2	12 + 4	4	16 ch/160	–	Y	I²C	4	2	2	35	1.8	100 LQFP	11.52
TMS320**F2808**-GGMA/S[2,3]	100	8 KB	36 KB	128 KB	15	4/2	12 + 4	4	16 ch/160	–	Y	I²C	4	2	2	35	1.8	100 BGA	11.52
TMS320**F2808**-ZGMA/S[2]	100	8 KB	36 KB	128 KB	15	4/2	12 + 4	4	16 ch/160	–	Y	I²C	4	2	2	35	1.8	100 BGA	11.52
TMS320**F2809**-PZA/S/Q[2]	100	8 KB	36 KB	256 KB	15	4/2	12 + 4	6	16 ch/160	–	Y	I²C	4	2	2	35	1.8	100 LQFP	12.99
TMS320**F2809**-GGMA/S[2,3]	100	8 KB	36 KB	256 KB	15	4/2	12 + 4	6	16 ch/160	–	Y	I²C	4	2	2	35	1.8	100 BGA	12.99
TMS320**F2809**-ZGMA/S[2]	100	8 KB	36 KB	256 KB	15	4/2	12 + 4	6	16 ch/160	–	Y	I²C	4	2	2	35	1.8	100 BGA	12.99
TMS320**F2810**-PBKA/S/Q[2]	150	8 KB	36 KB	128 KB	7	6/2	16	–	16 ch/80	–	Y	McBSP	1	2	1	56	1.9	128 LQFP	13.81
TMS320**F2811**-PBKA/S/Q[2]	150	8 KB	36 KB	256 KB	7	6/2	16	–	16 ch/80	–	Y	McBSP	1	2	1	56	1.9	128 LQFP	14.73
TMS320**F2812**-GHHA/S/Q[2,3]	150	8 KB	36 KB	256 KB	7	6/2	16	–	16 ch/80	Y	Y	McBSP	1	2	1	56	1.9	179 BGA	15.65
TMS320**F2812**-ZHHA/S/Q[2]	150	8 KB	36 KB	256 KB	7	6/2	16	–	16 ch/80	Y	Y	McBSP	1	2	1	56	1.9	179 BGA	15.65
TMS320**F2812**-PGFA/S/Q[2]	150	8 KB	36 KB	256 KB	7	6/2	16	–	16 ch/80	Y	Y	McBSP	1	2	1	56	1.9	176 LQFP	15.65
RAM-Only Devices																			
TMS320**R2811**-PBKA/Q[2]	150	8 KB	40 KB	–	7	6/2	16	–	16 ch/80	–	Y	McBSP	1	2	1	56	1.9	128 LQFP	9.11
TMS320**R2812**-GHHA/Q[2,3]	150	8 KB	40 KB	–	7	6/2	16	–	16 ch/80	Y	Y	McBSP	1	2	1	56	1.9	179 BGA	10.63
TMS320**R2812**-PGFA/Q[2]	150	8 KB	40 KB	–	7	6/2	16	–	16 ch/80	Y	Y	McBSP	1	2	1	56	1.9	176 LQFP	10.63
ROM Devices																			
TMS320**C2801**-PZA/S/Q[2]	100	8 KB	12 KB	32 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 LQFP	3.98[4]
TMS320**C2801**-GGMA/S[2,3]	100	8 KB	12 KB	32 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 BGA	3.98[4]
TMS320**C2801**-ZGMA/S[2]	100	8 KB	12 KB	32 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 BGA	3.98[4]
TMS320**C2802**-PZA/S/Q[2]	100	8 KB	12 KB	64 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 LQFP	4.88[4]
TMS320**C2802**-GGMA/S[2,3]	100	8 KB	12 KB	64 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 BGA	4.88[4]
TMS320**C2802**-ZGMA/S[2]	100	8 KB	12 KB	64 KB	9	2/1	6 + 2	3	16 ch/160	–	Y	I²C	2	1	1	35	1.8	100 BGA	4.88[4]
TMS320**C2810**-PBKA/Q[2]	150	8 KB	36 KB	128 KB	7	6/2	16	–	16 ch/80	–	Y	McBSP	1	2	1	56	1.9	128 LQFP	7.05[4]
TMS320**C2811**-PBKA/Q[2]	150	8 KB	36 KB	256 KB	7	6/2	16	–	16 ch/80	–	Y	McBSP	1	2	1	56	1.9	128 LQFP	8.22[4]
TMS320**C2812**-GHHA/Q[2,3]	150	8 KB	36 KB	256 KB	7	6/2	16	–	16 ch/80	Y	Y	McBSP	1	2	1	56	1.9	179 BGA	9.59[4]
TMS320**C2812**-ZHHA/Q[2]	150	8 KB	36 KB	256 KB	7	6/2	16	–	16 ch/80	Y	Y	McBSP	1	2	1	56	1.9	179 BGA	9.59[4]
TMS320**C2812**-PGFA/Q[2]	150	8 KB	36 KB	256 KB	7	6/2	16	–	16 ch/80	Y	Y	McBSP	1	2	1	56	1.9	176 LQFP	9.59[4]

[1] *Prices are quoted in U.S. dollars and represent year 2006 suggested resale pricing. All prices are subject to change. Customers are advised to obtain the most current and complete pricing information from TI prior to placing orders. TI may verify final pricing prior to accepting any order.*

New devices are listed in red.

[2] *A = –40° to 85°C; S = –40 to 125°C (10% adder over A); Q = –40 to 125°C, Q100 qualified (15% adder over S)*

[3] *Non Pb-Free/Green version of MicroStarBGA™; All other devices are Pb-Free/Green.*

[4] *Minimum volumes for C28x devices are 10 KU with NRE of $11,000.*

TMS320C24x™ Controller Generation

Device	MIPS	Boot ROM	RAM	Flash	ROM	General-Purpose Timers	PWM Channels	10-Bit A/D Channels / Conversion Time (µs)	EMIF	Watchdog Timer	SPI	SCI	CAN	I/O Pins	Voltage (V)	Packaging	1 KU ($U.S.)[1]
TMS320**LC2401A**VFA[2]	40	–	2 KB		16 KB	2	7	5 ch / 0.5	–	Y	–	Y	–	13	3.3	32 LQFP	1.99[2]
TMS320**LC2402A**PGA[2,3]	40	–	1 KB		12 KB	2	8	8 ch / 0.425	–	Y	–	Y	–	21	3.3	64 PQFP	2.60[2]
TMS320**LC2402A**PAGA[2,3]	40	–	1 KB	–	12 KB	2	8	8 ch / 0.425	–	Y	–	Y	–	21	3.3	64 LQFP	2.60[2]
TMS320**LC2403A**PAGA[2,3]	40	–	2 KB	–	32 KB	2	8	8 ch / 0.425	–	Y	Y	Y	Y	21	3.3	64 LQFP	3.95[2]
TMS320**LC2404A**PZA[2,3]	40	–	3 KB	–	32 KB	4	16	16 ch / 0.375	–	Y	Y	Y	–	41	3.3	100 LQFP	4.51[2]
TMS320**LC2406A**PZA[2,3]	40	–	5 KB	–	64 KB	4	16	16 ch / 0.375	–	Y	Y	Y	Y	41	3.3	100 LQFP	5.19[2]
TMS320**LF2401A**VFA	40	512 B	2 KB	16 KB	–	2	7	5 ch / 0.5	–	Y	–	Y	–	13	3.3	32 LQFP	3.49
TMS320**LF2402A**PGA[3]	40	512 B	2 KB	16 KB	–	2	8	8 ch / 0.5	–	Y	–	Y	–	21	3.3	64 PQFP	7.09
TMS320**LF2403A**PAGA[3]	40	512 B	2 KB	32 KB	–	2	8	8 ch / 0.5	–	Y	Y	Y	Y	21	3.3	64 LQFP	8.21
TMS320**LF2406A**PZA[3]	40	512 B	5 KB	64 KB	–	4	16	16 ch / 0.5	–	Y	Y	Y	Y	41	3.3	100 LQFP	8.33
TMS320**LF2407A**PGEA[3]	40	512 B	5 KB	64 KB	–	4	16	16 ch / 0.5	Y	Y	Y	Y	Y	41	3.3	144 LQFP	8.83

[1] *Prices are quoted in U.S. dollars and represent year 2006 suggested resale pricing. All prices are subject to change. Customers are advised to obtain the most current and complete pricing information from TI prior to placing orders. TI may verify final pricing prior to accepting any order.*

[2] *Minimum volume for LC240xA devices is 10 KU with NRE of $9,000.*

[3] *Available in industrial temperature range (A = –40 to 85°C) or extended temperature range (S = –40 to 125°C) (with 10% price adder).*