



Motor Control. Digital Power Conversion. Control Loops.

# Digital Signal Controllers (DSC)

## Product Summary

For more information, visit [freescale.com/DSC](http://freescale.com/DSC)

Freescale and the Freescale logo are trademarks of Freescale Semiconductor, Inc., Reg. U.S. Pat. & Tm. Off. All other product or service names are the property of their respective owners. © 2011-2012 Freescale Semiconductor, Inc.

Document Number: DSCPRDCTSMRY REV 3

**Digital Signal Controllers (DSCs)**

Rev Part Num	Speed (MHz)	Performance (MIPS)	Flash (KB)	RAM (KB)	Flex-Mem (KB)	DMA	High-Resolution PWM		PWM Channels	12-bit ADC	12-bit ADC Conversion Time	16-bit ADC	Analog Comparator	12-bit DAC	Quad De-coder	I <sup>2</sup> C	SCI/ QSCI	SPI/ QSPI	CAN	16-bit Timers	PIT	On-Chip Relaxation Oscillator	GPIO (MAX)	JTAG	Package	Temp Range		Operating Voltage	Other (key features, etc.)	10K# FSRP Starting Price	Evaluation Board
							Channels	Resolution																		-40 to +105°C	-40 to +125°C				
MC56F84789	100	100	288	32	32/2	4-ch.	1 x 8 + 4-ch.	312pS	1 x 12-ch.	2 x 8-ch.	300nSec	16-ch.	4 + 4 x 6-bit DAC	1	1	2	3 QSCI	3 QSPI	1 FlexCAN	8	2	y	86	y	100 LQFP	y	-	2.7-3.6V	Memory Resource Protection (MRP), CrossBar, 2xPGA	\$5.25	TWR-56F8400
MC56F84786	100	100	288	32	32/2	4-ch.	1 x 8 + 1-ch.	312pS	1 x 7-ch.	2 x 8-ch.	300nSec	10-ch.	4 + 4 x 6-bit DAC	1	1	2	3 QSCI	2 QSPI	1 FlexCAN	8	2	y	68	y	80 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$5.15	TWR-56F8400
MC56F84769	100	100	160	24	32/2	4-ch.	1 x 8 + 4-ch.	312pS	1 x 12-ch.	2 x 8-ch.	300nSec	16-ch.	4 + 4 x 6-bit DAC	1	1	2	3 QSCI	3 QSPI	1 FlexCAN	8	2	y	86	y	100 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$4.75	TWR-56F8400
MC56F84766	100	100	160	24	32/2	4-ch.	1 x 8 + 1-ch.	312pS	1 x 7-ch.	2 x 8-ch.	300nSec	10-ch.	4 + 4 x 6-bit DAC	1	1	2	3 QSCI	2 QSPI	1 FlexCAN	8	2	y	68	y	80 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$4.65	TWR-56F8400
MC56F84763	100	100	160	24	32/2	4-ch.	1 x 8 + 1-ch.	312pS	-	2 x 8-ch.	300nSec	8-ch.	4 + 4 x 6-bit DAC	1	-	2	2 QSCI	2 QSPI	1 FlexCAN	8	2	y	54	y	64 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$3.95	TWR-56F8400
MC56F84587	80	80	288	32	32/2	4-ch.	-	-	2 x 12-ch.	2 x 8-ch.	600nSec	16-ch.	4 + 4 x 6-bit DAC	1	1	2	3 QSCI	3 QSPI	1 FlexCAN	8	2	y	86	y	100 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$4.00	TWR-56F8400
MC56F84585	80	80	288	32	32/2	4-ch.	-	-	1 x 9-ch. 1 x 12-ch.	2 x 8-ch.	600nSec	10-ch.	4 + 4 x 6-bit DAC	1	1	2	3 QSCI	2 QSPI	1 FlexCAN	8	2	y	68	y	80 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$3.90	TWR-56F8400
MC56F84567	80	80	160	24	32/2	4-ch.	-	-	2 x 12-ch.	2 x 8-ch.	600nSec	16-ch.	4 + 4 x 6-bit DAC	-	1	2	3 QSCI	3 QSPI	1 FlexCAN	8	2	y	86	y	100 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$3.40	TWR-56F8400
MC56F84565	80	80	160	24	32/2	4-ch.	-	-	1 x 9-ch. 1 x 12-ch.	2 x 8-ch.	600nSec	10-ch.	4 + 4 x 6-bit DAC	-	1	2	3 QSCI	2 QSPI	1 FlexCAN	8	2	y	68	y	80 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$3.30	TWR-56F8400
MC56F84553	80	80	128	16	32/2	4-ch.	1 x 8 + 1-ch.	390pS	-	2 x 8-ch.	300nSec	8-ch.	4 + 4 x 6-bit DAC	1	-	2	2 QSCI	2 QSPI	-	8	2	y	54	y	64 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$3.70	TWR-56F8400
MC56F84550	80	80	128	16	32/2	4-ch.	1 x 6-ch.	390pS	-	2 x 8-ch.	300nSec	-	3 + 3 x 6-bit DAC	1	-	2	2 QSCI	2 QSPI	-	8	2	y	39	y	48 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$3.60	TWR-56F8400
MC56F84543	80	80	96	8	32/2	4-ch.	1 x 8 + 1-ch.	390pS	-	2 x 8-ch.	300nSec	8-ch.	4 + 4 x 6-bit DAC	1	-	2	2 QSCI	2 QSPI	1 FlexCAN	8	2	y	54	y	64 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$3.30	TWR-56F8400
MC56F84540	80	80	96	8	32/2	4-ch.	1 x 6-ch.	390pS	-	2 x 8-ch.	300nSec	-	3 + 3 x 6-bit DAC	1	-	2	2 QSCI	2 QSPI	1 FlexCAN	8	2	y	39	y	48 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$3.20	TWR-56F8400
MC56F84462	60	60	160	24	32/2	4-ch.	-	-	1 x 9-ch.	2 x 8-ch.	600nSec	8-ch.	4 + 4 x 6-bit DAC	-	1	2	2 QSCI	2 QSPI	1 FlexCAN	8	2	y	54	y	64 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$2.75	TWR-56F8400
MC56F84452	60	60	128	16	32/2	4-ch.	-	-	1 x 9-ch.	2 x 8-ch.	600nSec	8-ch.	4 + 4 x 6-bit DAC	-	1	2	2 QSCI	2 QSPI	1 FlexCAN	8	2	y	54	y	64 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$2.65	TWR-56F8400
MC56F84451	60	60	128	16	32/2	4-ch.	-	-	1 x 6-ch.	2 x 5-ch.	600nSec	-	3 + 3 x 6-bit DAC	-	1	2	2 QSCI	2 QSPI	1 FlexCAN	8	2	y	39	y	48 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$2.55	TWR-56F8400
MC56F84442	60	60	96	8	32/2	4-ch.	-	-	1 x 9-ch.	2 x 8-ch.	600nSec	8-ch.	4 + 4 x 6-bit DAC	-	1	2	2 QSCI	2 QSPI	-	8	2	y	54	y	64 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$2.20	TWR-56F8400
MC56F84441	60	60	96	8	32/2	4-ch.	-	-	1 x 6-ch.	2 x 5-ch.	600nSec	-	3 + 3 x 6-bit DAC	-	1	2	2 QSCI	2 QSPI	-	8	2	y	39	y	48 LQFP	y	-	2.7-3.6V	MRP, CrossBar, 2xPGA	\$1.99	TWR-56F8400
MC56F8257	60	60	64	8	-	-	1 x 6 + 3-ch.	520pS	-	2 x 8-ch.	600nSec	-	3 + 3 x 5-bit DAC	1	-	2	2 QSCI	1 QSPI	1 MSCAN	8	-	y	54	y	64 LQFP	y	y	2.7-3.6V	2xPGA, CrossBar	\$3.49	TWR-56F8257
MC56F8256	60	60	64	8	-	-	1 x 6-ch.	520pS	-	2 x 5-ch.	600nSec	-	3 + 3 x 5-bit DAC	1	-	2	2 QSCI	1 QSPI	1 MSCAN	8	-	y	39	y	48 LQFP	y	y	2.7-3.6V	2xPGA, CrossBar	\$3.13	TWR-56F8257
MC56F8255	60	60	64	8	-	-	1 x 6-ch.	520pS	-	2 x 4-ch.	600nSec	-	3 + 3 x 5-bit DAC	1	-	2	2 QSCI	1 QSPI	1 MSCAN	8	-	y	35	y	44 LQFP	y	y	2.7-3.6V	2xPGA, CrossBar	\$3.08	TWR-56F8257
MC56F8247	60	60	48	8	-	-	1 x 6 + 3-ch.	520pS	-	2 x 8-ch.	600nSec	-	3 + 3 x 5-bit DAC	1	-	2	2 QSCI	1 QSPI	-	8	-	y	54	y	64 LQFP	y	y	2.7-3.6V	2xPGA, CrossBar	\$3.32	TWR-56F8257
MC56F8246	60	60	48	6	-	-	1 x 6-ch.	520pS	-	2 x 5-ch.	600nSec	-	3 + 3 x 5-bit DAC	1	-	2	2 QSCI	1 QSPI	-	8	-	y	39	y	48 LQFP	y	y	2.7-3.6V	2xPGA, CrossBar	\$2.74	TWR-56F8257
MC56F8245	60	60	48	6	-	-	1 x 6-ch.	520pS	-	2 x 4-ch.	600nSec	-	3 + 3 x 5-bit DAC	1	-	2	2 QSCI	1 QSPI	-	8	-	y	35	y	44 LQFP	y	y	2.7-3.6V	2xPGA, CrossBar	\$2.69	TWR-56F8257
MC56F8002	32	32	12	2	-	-	-	-	1 x 6-ch.	2 x 12-ch.	2uSec	-	3	-	2	1	1 SCI	1 SPI	-	8	1	y	40	y	28 SOIC	y	-	1.8-3.6V	3 2X-32X Wideband PGAs, Nine Different Stop Modes	\$1.50	MC56F8006DEMO
MC56F8006	32	32	16	2	-	-	-	-	1 x 6-ch.	2 x 12-ch.	2uSec	-	3	-	2	1	1 SCI	1 SPI	-	8	1	y	40	y	48 LQFP 32 LQFP 28 SOIC	y	-	1.8-3.6V	2 2X-32X Wideband PGAs, Nine Different Stop Modes	\$1.56	MC56F8006DEMO
MC56F8011	32	32	12	2	-	-	-	-	1 x 6-ch.	2 x 3-ch.	1.2uSec	-	-	-	-	1	1 SCI	1 SPI	-	4	-	y	26	y	32 LQFP	y	-	3.0-3.6V	Power-On_Reset and Low Voltage Detect	\$2.80	DEMO56F8014-EE
MC56F8013	32	32	16	4	-	-	-	-	1 x 6-ch.	2 x 3-ch.	1.2uSec	-	-	-	-	1	1 SCI	1 SPI	-	4	-	y	26	y	32 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	\$3.06	DEMO56F8013-EE
MC56F8014	32	32	16	4	-	-	-	-	1 x 5-ch.	2 x 4-ch.	1.2uSec	-	-	-	-	1	1 SCI	1 SPI	-	4	-	y	26	y	32 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	\$3.06	DEMO56F8014-EE
MC56F8023	32	32	32	4	-	-	-	-	1 x 6-ch.	2 x 3-ch.	1.2uSec	-	2	<sup>2</sup> (Internal)	-	1	1 QSCI	1 QSPI	-	4	1	y	26	y	32 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	\$3.20	56F8037EVM
MC56F8025	32	32	32	4	-	-	-	-	1 x 6-ch.	2 x 4-ch.	1.2uSec	-	2	<sup>2</sup> (Internal)	-	1	1 QSCI	1 QSPI	-	4	3	y	35	y	44 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	\$3.29	56F8037EVM
MC56F8027	32	32	32	4	-	-	-	-	1 x 6-ch.	2 x 8-ch.	1.2uSec	-	2	<sup>2</sup> (External)	-	1	2 QSCI	2 QSPI	1 MSCAN	8	3	y	53	y	64 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	\$3.45	56F8037EVM
MC56F8033	32	32	64	8	-	-	-	-	1 x 6-ch.	2 x 3-ch.	1.2uSec	-	2	<sup>2</sup> (Internal)	-	1	1 QSCI	1 QSPI	-	4	1	y	26	y	32 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	-	56F8037EVM
MC56F8035	32	32	64	8	-	-	-	-	1 x 6-ch.	2 x 4-ch.	1.2uSec	-	2	<sup>2</sup> (Internal)	-	1	1 QSCI	1 QSPI	-	4	3	y	35	y	44 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	-	56F8037EVM
MC56F8036	32	32	64	8	-	-	-	-	1 x 6-ch.	2 x 5-ch.	1.2uSec	-	2	<sup>2</sup> (Internal)	-	1	1 QSCI	1 QSPI	1 MSCAN	4	3	y	39	y	48 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	\$3.73	56F8037EVM
MC56F8037	32	32	64	8	-	-	-	-	1 x 6-ch.	2 x 8-ch.	1.2uSec	-	2	<sup>2</sup> (External)	-	1	2 QSCI	2 QSPI	1 MSCAN	8	3	y	53	y	64 LQFP	y	y	3.0-3.6V	Power-On_Reset and Low Voltage Detect	\$3.98	56F8037EVM