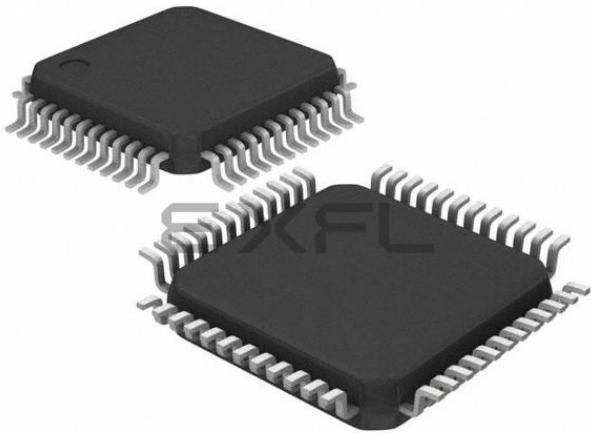




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What is "[Embedded - Microcontrollers](#)"?

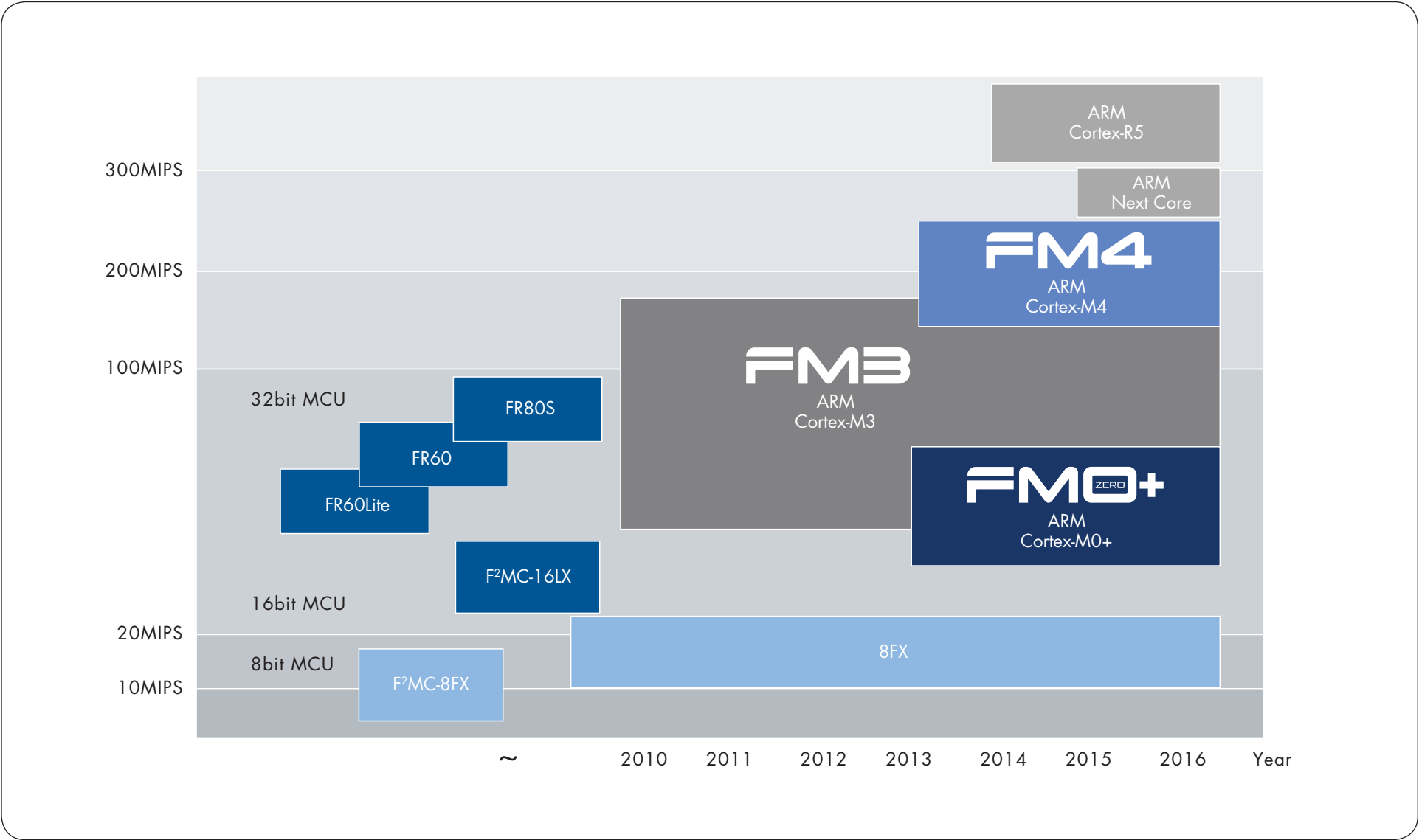
"[Embedded - Microcontrollers](#)" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "[Embedded - Microcontrollers](#)"

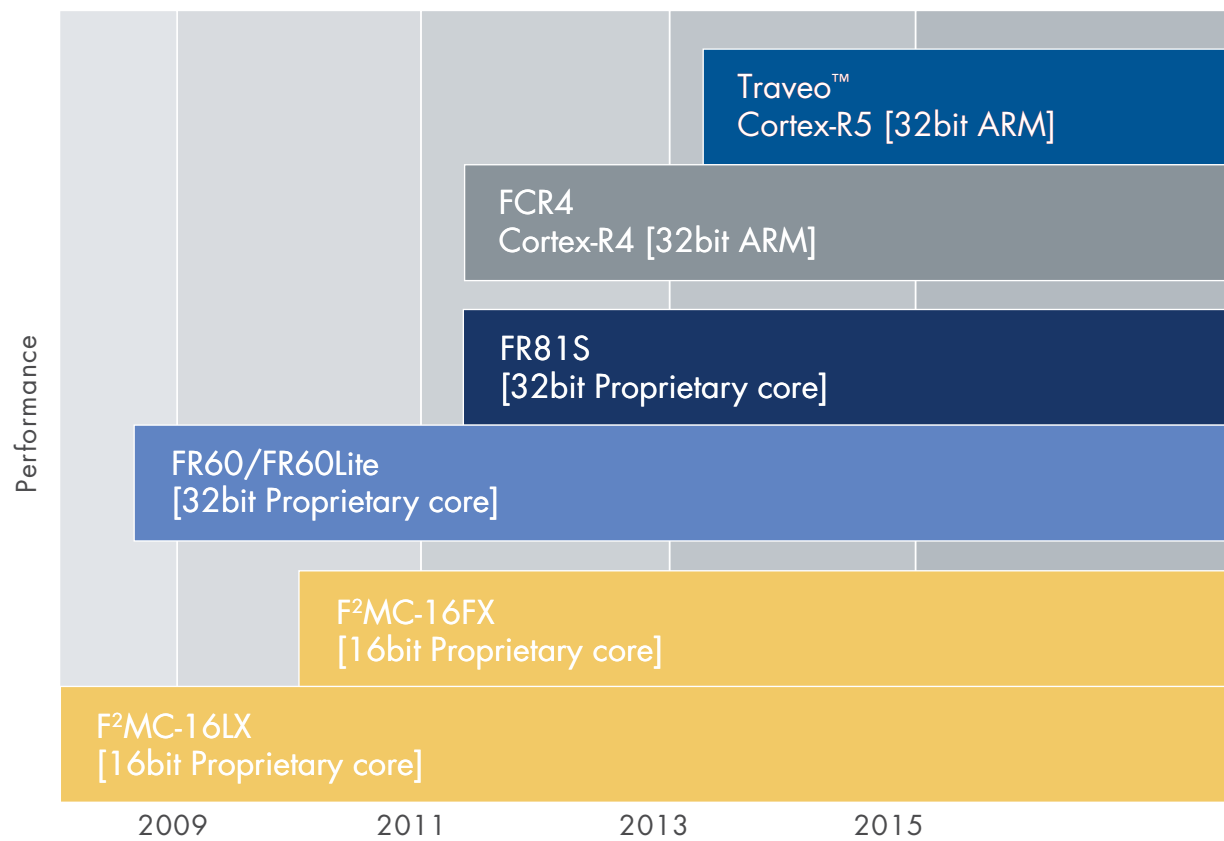
Details

Product Status	Obsolete
Core Processor	F ² MC-8FX
Core Size	8-Bit
Speed	16MHz
Connectivity	I ² C, LINbus, SIO, UART/USART
Peripherals	LVD, POR, PWM, WDT
Number of I/O	45
Program Memory Size	60KB (60K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	2K x 8
Voltage - Supply (Vcc/Vdd)	2.88V ~ 5.5V
Data Converters	A/D 12x8/10b
Oscillator Type	External
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	48-LQFP
Supplier Device Package	48-LQFP (7x7)
Purchase URL	https://www.e-xfl.com/product-detail/infineon-technologies/mb95f698knpmc-g109snere2

Consumer and Industrial MCU Core Roadmap



Automotive MCU Core Roadmap



Automotive MCU Family

TRAVEO FAMILY

The Cypress Traveo™ family expands the company's automotive application coverage, scalability and high performance into one line-up and at the same time adds new features to fulfill the latest requirements of the automotive industry. Based on the powerful ARM® Cortex®-R5 and R5F core in single and dual core operations, it offers state-of-the-art real-time performance, safety and security features.

The family supports the latest in-car networks and offers high performance graphics engines optimized for a minimum memory footprint and embeds dedicated features to increase data security in the car.

High-level Traveo Features

- ARM Cortex-R5 core
- Dual core
- Embedded twin-motor control with internal R/D converter
- Embedded 2D and 3D graphics engines
- High performance embedded flash memory
- Cypress HyperBus™: High speed serial interfaces to connect external memory
- Qualified for automotive use (AEC-Q100)
- Software support for Autosar, graphics drivers and more

FR FAMILY

Cypress 32bit MCU families have been designed in close co-operation with major automotive customers worldwide and inherit the high-performance core of Cypress's proprietary FR MCU architecture. They support communication interfaces such as CAN, FlexRay and LIN as well as up to 2MB on-chip memory capacity. The latest members (MB915xx) also include a single precision Floating Point Unit (FPU) providing additional computing power required by complex control algorithms.

This high computing performance combined with powerful peripheral functions such as on-chip graphics controller and motor control macros, offers a higher grade of flexibility and lower cost for automotive as well as industrial applications.

Many devices offer an external bus interface which can be connected to Cypress's stand alone FlexRay controller or to the latest generation of graphics controllers in order to build full-featured dashboards, driver information systems or advanced body systems.

FCR4 FAMILY

The FCR4 family has been specifically designed to offer an innovative, scalable solution for hybrid instrument clusters, which combine traditional meters and graphical displays. The devices offer a powerful architecture based on the ARM Cortex-R4 core and Cypress's 2D graphics engine.

High-level FCR4 Features

- ARM Cortex-R4 core
- Embedded 2D graphics engine
- 2MB flash, 64KB E2Flash
- Up to 208KB RAM
- Features including real-time clock/auto calibration, sound generator and I2S

F2MC-16FX FAMILY

Cypress 16-bit flexible microcontroller series offers a scalable family concept approach to a variety of automotive and industrial applications. The scalable flash/ROM/RAM sizes with different mixtures of peripherals saves development time and costs. CAN and LIN support, on-chip LCD controller, SMC (stepper motor controller), I²C bus interface, analog input channels, external bus interface, selectable port levels for CMOS, TTL and Automotive Levels are some of the enhanced features. A security feature is incorporated, preventing unauthorized reading of the contents of the flash memory.



FM4 Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	1bit AD Converter [bit(unif)]	12bit AD Converter [bit(unif)]	DA Converter [bit x ch]	Timer								Serial				Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SIO [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]					USB-Function [ch]																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
S6E2HG	S6E2HG6E0A	160	LQFP-80	2.7 to 5.5	✓	Main Flash +Work Flash	512K + 32K	64K	-	8	16	✓	63	16 (3)	24 (3)	-	Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)	2	-	-	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC	On-Chip Debug (SWJ-DP/ ETM)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	S6E2HG6F0A		LQFP-100										80																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	S6E2HG6G0A		LQFP-120 BGA-121										100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	S6E2HG4E0A	160	LQFP-80	2.7 to 5.5	✓	Main Flash +Work Flash	256K + 32K	32K	-	8	16	✓	63	16 (3)	24 (3)	-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [pin]	10bit AD Converter [ch/unit]	12bit AD Converter [ch/unit]	DA Converter [bit x ch]	Timer							Serial				Communication				Note	Evaluation Device							
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]			USB-Function [ch]	LCD Controller [seg x com]	Three-phase Inverter				
S6E2CC-V	S6E2CCAJGA	200	LQFP-176 BGA-192	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	-	8	32	✓	152	-	32 (3)	12 x 2	Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 4	1	Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable)	3 (2 x CAN + CAN FD)	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch, Chipher, Voice	On-Chip Debug (SWJ-DP/ETM/ HTM)													
	1M		128K																																					
	2M		256K																																					
	1M		128K																																					
S6E2CC w/ Security	S6E2CCAHHA	200	LQFP-144	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	-	8	32	✓	152	-	32 (3)	12 x 2	Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 4	1	Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable)	3 (2 x CAN + CAN FD)	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch, Chipher	On-Chip Debug (SWJ-DP/ETM/ HTM)													
	S6E2CCAJHA		LQFP-176 BGA-192																									152	32 (3)											
	S6E2CCALHA		LQFP-216																									190	24 (3)											
	S6E2CC9HHA		LQFP-144																									120	24 (3)											
	S6E2CC9JHA		LQFP-176 BGA-192				1.5M	192K					1M	128K	152	-												32 (3)	12 x 2	Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 4	1	Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable)	3 (2 x CAN + CAN FD)	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch, Chipher	On-Chip Debug (SWJ-DP/ETM/ HTM)
	S6E2CC9LHA		LQFP-216				190	24 (3)																																
	S6E2CC8HHA		LQFP-144				120	24 (3)																																
	S6E2CC8JHA		LQFP-176 BGA-192				152	32 (3)																																
S6E2CC8LHA	LQFP-216	190	24 (3)																																					
S6E2CC	S6E2CCAH0A	200	LQFP-144	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	-	8	32	✓	152	-	32 (3)	12 x 2	Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 4	1	Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable)	3 (2 x CAN + CAN FD)	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch	On-Chip Debug (SWJ-DP/ETM/ HTM)													
	S6E2CCAJ0A		LQFP-176 BGA-192																									152	32 (3)											
	S6E2CCAL0A		LQFP-216																									190	24 (3)											
	S6E2CC9H0A		LQFP-144																									120	24 (3)											
	S6E2CC9J0A		LQFP-176 BGA-192				1.5M	196K					1M	128K	152	-												32 (3)	12 x 2	Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 4	1	Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable)	3 (2 x CAN + CAN FD)	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch	On-Chip Debug (SWJ-DP/ETM/ HTM)
	S6E2CC9L0A		LQFP-216				190	24 (3)																																
	S6E2CC8H0A		LQFP-144				120	24 (3)																																
	S6E2CC8J0A		LQFP-176 BGA-192				152	32 (3)																																
S6E2CC8L0A	LQFP-216	190	24 (3)																																					
S6E2C5	S6E2C5AH0A	200	LQFP-144	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	-	8	32	✓	152	-	32 (3)	12 x 2	Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 4	1	Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable)	3 (2 x CAN + CAN FD)	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC	On-Chip Debug (SWJ-DP/ETM/ HTM)													
	S6E2C5AJ0A		LQFP-176 BGA-192																									152	32 (3)											
	S6E2C5AL0A		LQFP-216																									190	24 (3)											
	S6E2C59H0A		LQFP-144																									120	24 (3)											
	S6E2C59J0A		LQFP-176 BGA-192				1.5M	192K					1M	12																										

FM4 Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bit AD Converter [ch](unit)	12bit AD Converter [ch](unit)	DA Converter [bit x ch]	Timer									Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]				
MB9B160R	MB9BF166M	160	LQFP-80	2.7 to 5.5	✓	Main Flash +Work Flash	512K +32K	64K	-	8	16	✓	63	-	16(3)	12 x 2	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 2	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	-	-	-	-	✓	Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F	On-chip Debug (SWJ-DP/ETM)							
	80		24(3)																																
	100		16(3)																																
	MB9BF166R		LQFP-120 BGA-144				63	16(3)																											
	MB9BF167M		LQFP-80				80	24(3)																											
	MB9BF167N		LQFP-100 QFP-100 BGA-112				100	16(3)																											
	MB9BF167R		LQFP-120 BGA-144				63	16(3)																											
	MB9BF168M		LQFP-80				80	24(3)																											
	MB9BF168N		LQFP-100 QFP-100 BGA-112				100	24(3)																											
MB9BF168R	LQFP-120 BGA-144	100	24(3)																																
MB9B560L	MB9BF564K	160	LQFP-48 QFN-48	2.7 to 5.5	✓	Main Flash +Work Flash	256K +32K	32K	-	8	15	-	33	-	8(2)	12 x 2	Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 1	1	Multi Function Serial x 6ch (UART/CSIO/I ² C/LIN Selectable)	1	1ch (USB-Host/ USB-Function Selectable)	-	✓	CAN: 32Msg-buffer, Dual Timer, Real Time Clock, Unique ID, DSTC x 128ch	On-chip Debug (SWJ-DP)								
	48		15(2)																																
	MB9BF564L		LQFP-64 QFN-64				16	48			15(2)	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable)																							
	MB9BF565K		LQFP-48 QFN-48				15	33			8(2)	Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable)																							
	MB9BF565L	LQFP-64 QFN-64	16	48	15(2)	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable)																													
	MB9BF566K	160	LQFP-48 QFN-48	2.7 to 5.5	✓	Main Flash +Work Flash	512K +32K	64K	-	8	15	-	33	-	8(2)		12 x 2	Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 1	1	Multi Function Serial x 6ch (UART/CSIO/I ² C/LIN Selectable)	1	1ch (USB-Host/ USB-Function Selectable)	-	✓	CAN: 32Msg-buffer, Dual Timer, Real Time Clock, Unique ID, DSTC x 128ch	On-chip Debug (SWJ-DP)							
	MB9BF566L		LQFP-64 QFN-64										16		48														15(2)	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable)					

FM4 Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bit AD Converter [ch/unit]	12bit AD Converter [ch/unit]	DA Converter [bit x ch]	Timer								Serial				Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]				
MB9B360L	MB9BF364K	160	LQFP-48 QFN-48	2.7 to 5.5 2.7 to 5.5	✓	Main Flash +Work Flash	256K +32K	32K	-	8	-	-	-	12 x 2	8(2)	12 x 2	Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 1	1	Multi Function Serial x 6ch (UART/CSIO/I2C/LIN Selectable)	-	1ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Real Time Clock, Unique ID, DSTC x 128ch	On-chip Debug (SWJ-DP)								
	MB9BF364L		LQFP-64 QFN-64																																
	MB9BF365K		LQFP-48 QFN-48				384K +32K	48K																				15	33	8(2)					
	MB9BF365L		LQFP-64 QFN-64																												16	48	15(2)		
	MB9BF366K		LQFP-48 QFN-48				512K +32K	64K																										15	33
	MB9BF366L		LQFP-64 QFN-64																												16	48			

FM3 Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bit AD Converter [ch/unit]	12bit AD Converter [ch/unit]	DA Converter [bit x ch]	Timer							Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device		
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI ² C/LIN Selectable	SIO [ch]	LIN/UART/SIO [ch]					CAN [ch]	USB-Host [ch]
HIGH-PERFORMANCE GROUP																																			
MB9BD10T	MB9BFD16T	144	LQFP-176 BGA-192	2.7 to 5.5	✓	FLASH	512K	64K	-	8	32	✓	-	-	-	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	-	-	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	2	2ch (USB-Host/ USB-Function Selectable)	-	✓	CAN: 32Msg-buffer, Dual Timer, Ethernet-MAC x 2ch	On-chip Debug (SWJ-DP/ETM)						
	MB9BFD16S		LQFP-144				768K	96K																											
	MB9BFD17T		LQFP-176 BGA-192				768K	96K																											
	MB9BFD17S		LQFP-144				768K	96K																											
	MB9BFD18T		LQFP-176 BGA-192				1M	128K																											
	MB9BFD18S		LQFP-144				1M	128K																											
MB9B610T	MB9BF616T	144	LQFP-176 BGA-192	2.7 to 5.5	✓	FLASH	512K	64K	-	8	32	✓	-	-	-	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	-	-	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	-	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Ethernet-MAC x 2ch	On-chip Debug (SWJ-DP/ETM)						
	MB9BF616S		LQFP-144				768K	96K																											
	MB9BF617T		LQFP-176 BGA-192				768K	96K																											
	MB9BF617S		LQFP-144				768K	96K																											
	MB9BF618T		LQFP-176 BGA-192				1M	128K																											
	MB9BF618S		LQFP-144				1M	128K																											
MB9B510T	MB9BF516T	144	LQFP-176 BGA-192	2.7 to 5.5	✓	FLASH	512K	64K	-	8	32	✓	-	-	-	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	-	-	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	2	2ch (USB-Host/ USB-Function Selectable)	-	✓	CAN: 32Msg-buffer, Dual Timer	On-chip Debug (SWJ-DP/ETM)						
	MB9BF516S		LQFP-144				768K	96K																											
	MB9BF517T		LQFP-176 BGA-192				768K	96K																											
	MB9BF517S		LQFP-144				768K	96K																											
	MB9BF518T		LQFP-176 BGA-192				1M	128K																											
	MB9BF518S		LQFP-144				1M	128K																											
MB9B410T	MB9BF416T	144	LQFP-176 BGA-192	2.7 to 5.5	✓	FLASH	512K	64K	-	8	32	✓	-	-	-	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	-	-	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	2	-	-	-	✓	CAN: 32Msg-buffer, Dual Timer	On-chip Debug (SWJ-DP/ETM)					
	MB9BF416S		LQFP-144				768K	96K																											
	MB9BF417T		LQFP-176 BGA-192				768K	96K																											
	MB9BF417S		LQFP-144				768K	96K																											
	MB9BF418T		LQFP-176 BGA-192				1M	128K																											
	MB9BF418S		LQFP-144				1M	128K																											
MB9B310T	MB9BF316T	144	LQFP-176 BGA-192	2.7 to 5.5	✓	FLASH	512K	64K	-	8	32	✓	-	-	-	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	-	-	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	-	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer	On-chip Debug (SWJ-DP/ETM)						
	MB9BF316S		LQFP-144				768K	96K																											
	MB9BF317T		LQFP-176 BGA-192				768K	96K																											
	MB9BF317S		LQFP-144				768K	96K																											
	MB9BF318T		LQFP-176 BGA-192				1M	128K																											
	MB9BF318S		LQFP-144				1M	128K																											
MB9B210T	MB9BF216T	144	LQFP-176 BGA-192	2.7 to 5.5	✓	FLASH	512K	64K	-	8	32	✓	-	-	-	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	-	-	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	-	2ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer, Ethernet-MAC x 1ch	On-chip Debug (SWJ-DP/ETM)						
	MB9BF216S		LQFP-144				768K	96K																											
	MB9BF217T		LQFP-176 BGA-192				768K	96K																											
	MB9BF217S		LQFP-144				768K	96K																											
	MB9BF218T		LQFP-176 BGA-192				1M	128K																											
	MB9BF218S		LQFP-144				1M	128K																											
MB9B110T	MB9BF116T	144	LQFP-176 BGA-192	2.7 to 5.5	✓	FLASH	512K	64K	-	8	32	✓	-	-	-	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	-	-	Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	-	-	-	-	✓	Dual Timer	On-chip Debug (SWJ-DP/ETM)					
	MB9BF116S		LQFP-144				768K	96K																											
	MB9BF117T		LQFP-176 BGA-192				768K	96K																											
	MB9BF117S		LQFP-144				768K	96K																											
	MB9BF118T		LQFP-176 BGA-192				1M	128K																											
	MB9BF118S		LQFP-144				1M	128K																											

FM3 Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bit AD Converter [ch/unit]	12bit AD Converter [ch/unit]	DA Converter [bit x ch]	Timer								Serial				Communication				Note	Evaluation Device
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]	USB-Function [ch]		
HIGH-PERFORMANCE GROUP																																		
MB9B510R	MB9BF512N	144	QFP-100 LQFP-100 BGA-112	2.7 to 5.5	✓	Main Flash +Work Flash	128K +32K	16K	-	8	16	✓	83	-	16(3)	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	2	1ch (USB-Host/ USB-Function Selectable)	-	✓	CAN: 32Msg-buffer, Dual Timer	On-chip Debug (SWJ-DP/ETM)							
	MB9BF512R		LQFP-120				103																											
	MB9BF514N		QFP-100 LQFP-100 BGA-112				256K +32K	32K					83																					
	MB9BF514R		LQFP-120				103																											
	MB9BF515N		QFP-100 LQFP-100 BGA-112				384K +32K	48K					83																					
	MB9BF515R		LQFP-120				103																											
	MB9BF516N		QFP-100 LQFP-100 BGA-112				512K +32K	64K					83																					
	MB9BF516R		LQFP-120				103																											
MB9B410R	MB9BF412N	144	QFP-100 LQFP-100 BGA-112	2.7 to 5.5	✓	Main Flash +Work Flash	128K +32K	16K	-	8	16	✓	83	-	16(3)	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	2	-	-	-	✓	CAN: 32Msg-buffer, Dual Timer	On-chip Debug (SWJ-DP/ETM)						
	MB9BF412R		LQFP-120				103																											
	MB9BF414N		QFP-100 LQFP-100 BGA-112				256K +32K	32K					83																					
	MB9BF414R		LQFP-120				103																											
	MB9BF415N		QFP-100 LQFP-100 BGA-112				384K +32K	48K					83																					
	MB9BF415R		LQFP-120				103																											
	MB9BF416N		QFP-100 LQFP-100 BGA-112				512K +32K	64K					83																					
	MB9BF416R		LQFP-120				103																											
MB9B310R	MB9BF312N	144	QFP-100 LQFP-100 BGA-112	2.7 to 5.5	✓	Main Flash +Work Flash	128K +32K	16K	-	8	16	✓	83	-	16(3)	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	-	1ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer	On-chip Debug (SWJ-DP/ETM)							
	MB9BF312R		LQFP-120				103																											
	MB9BF314N		QFP-100 LQFP-100 BGA-112				256K +32K	32K					83																					
	MB9BF314R		LQFP-120				103																											
	MB9BF315N		QFP-100 LQFP-100 BGA-112				384K +32K	48K					83																					
	MB9BF315R		LQFP-120				103																											
	MB9BF316N		QFP-100 LQFP-100 BGA-112				512K +32K	64K					83																					
	MB9BF316R		LQFP-120				103																											
MB9B110R	MB9BF112N	144	QFP-100 LQFP-100 BGA-112	2.7 to 5.5	✓	Main Flash +Work Flash	128K +32K	16K	-	8	16	✓	83	-	16(3)	-	Multi-Function Timer x 3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 3	1	Multi Function Serial x 8ch (UART/CSIO/I ² C/LIN Selectable)	-	-	-	-	✓	Dual Timer	On-chip Debug (SWJ-DP/ETM)						
	MB9BF112R		LQFP-120				103																											
	MB9BF114N		QFP-100 LQFP-100 BGA-112				256K +32K	32K					83																					
	MB9BF114R		LQFP-120				103																											
	MB9BF115N		QFP-100 LQFP-100 BGA-112				384K +32K	48K					83																					
	MB9BF115R		LQFP-120				103																											
	MB9BF116N		QFP-100 LQFP-100 BGA-112				512K +32K	64K					83																					

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Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [bit]	Ext. Interrupt [bit]	External Bus	Maximum I/O port [bit]	10bit AD Converter [bit(unit)]	12bit AD Converter [bit(unit)]	DA Converter [bit x bit]	Timer								Serial			Communication			Note	Evaluation Device
																	Output Compare [bit]	Free-Run Timer [bit]	Input Capture [bit]	Reload Timer [bit]	PWM Timer [bit]	PWC Timer [bit]	PPG Timer [bit]	Up/Down Counter [bit]	Other timers [bit]	I ² C [bit]	UART/ISI [bit]	SIO [bit]	LIN/UART/SIO [bit]	CAN [bit]		
HIGH-PERFORMANCE GROUP																																
MB9B500B	MB9BF504NB	80	LQFP-100 BGA-112	2.7 to 5.5	✓	FLASH	256K	32K	-	8	16	✓	80	-	16(3)	-	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 2	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)	2	1ch (USB-Host/ USB-Function Selectable)	-	✓	CAN: 32Msg-buffer, Dual Timer	On-chip Debug (SWJ-DP/ETM)					
	MB9BF504RB		LQFP-120				100																									
	MB9BF505NB		LQFP-100 BGA-112				80																									
	MB9BF505RB		LQFP-120				100																									
	MB9BF506NB		LQFP-100 BGA-112				80																									
	MB9BF506RB		LQFP-120				100																									
MB9B400A	MB9BF404NA	80	LQFP-100 BGA-112	2.7 to 5.5	✓	FLASH	256K	32K	-	8	16	✓	80	-	16(3)	-	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 2	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)	2	-	-	-	✓	CAN: 32Msg-buffer, Dual Timer	On-chip Debug (SWJ-DP/ETM)				
	MB9BF404RA		LQFP-120				100																									
	MB9BF405NA		LQFP-100 BGA-112				80																									
	MB9BF405RA		LQFP-120				100																									
	MB9BF406NA		LQFP-100 BGA-112				80																									
	MB9BF406RA		LQFP-120				100																									
MB9B300B	MB9BF304NB	80	LQFP-100 BGA-112	2.7 to 5.5	✓	FLASH	256K	32K	-	8	16	✓	80	-	16(3)	-	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 2	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)	-	1ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer	On-chip Debug (SWJ-DP/ETM)					
	MB9BF304RB		LQFP-120				100																									
	MB9BF305NB		LQFP-100 BGA-112				80																									
	MB9BF305RB		LQFP-120				100																									
	MB9BF306NB		LQFP-100 BGA-112				80																									
	MB9BF306RB		LQFP-120				100																									
MB9B100A	MB9BF102NA	80	LQFP-100 BGA-112	2.7 to 5.5	✓	FLASH	128K	16K	-	8	16	✓	80	-	16(3)	-	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 2	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)	-	-	-	-	✓	Dual Timer	On-chip Debug (SWJ-DP/ETM)				
	MB9BF102RA		LQFP-120				100																									
	MB9BF104NA		LQFP-100 BGA-112				80																									
	MB9BF104RA		LQFP-120				100																									
	MB9BF105NA		LQFP-100 BGA-112				80																									
	MB9BF105RA		LQFP-120				100																									
	MB9BF106NA		LQFP-100 BGA-112				80																									
	MB9BF106RA		LQFP-120				100																									
BASIC GROUP																																
MB9B520M	MB9BF521K	72	LQFP-48 QFN-48	2.7 to 5.5	✓	Dual Op. Flash (Main area + Work area)	64K +32K	16K	-	8	-	-	14	-	10bit x 2	Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 1	1	Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable)	1	1ch (USB-Host/ USB-Function Selectable)	-	✓	CAN: 32Msg-buffer, Dual Timer, Unique ID, Real Time Clock	On-chip Debug (SWJ-DP)						
	MB9BF521L		LQFP-64 QFN-64										19					50		23(2)							QPRC x 2	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)				
	MB9BF521M		LQFP-80 BGA-96										23					65		26(2)							QPRC x 1	Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable)				
	MB9BF522K		LQFP-48 QFN-48										14					35		14(2)							QPRC x 2	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)				
	MB9BF522L		LQFP-64 QFN-64				19	50					23(2)					QPRC x 2		Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable)												
	MB9BF522M		LQFP-80 BGA-96				23	65					26(2)																			
	MB9BF524K		LQFP-48 QFN-48				14	35					14(2)																			
	MB9BF524L		LQFP-64 QFN-64				19	50					23(2)																			
	MB9BF524M		LQFP-80 BGA-96				23	65					26(2)																			

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Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bit AD Converter [ch(unit)]	12bit AD Converter [ch(unit)]	DA Converter [bit x ch]	Timer								Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device																								
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]					USB-Host [ch]	USB-Function [ch]																						
BASIC GROUP																																																										
MB9A310A	MB9AF311LA	40	LQFP-64 QFN-64	2.7 to 5.5	✓	FLASH	64K	16K	-	8	-	51	9(2)	-	-	-	Multi-Function Timer x 1 unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	QPRC x 2	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)	-	1ch (USB-Host/ USB-Function Selectable)	-	✓	Dual Timer				On-chip Debug (SWJ-DP)																												
	MB9AF311MA		LQFP-80														11														66	12(3)																										
	MB9AF311NA		LQFP-100 QFP-100 BGA-112														16														✓	83	16(3)																									
	MB9AF312LA		LQFP-64 QFN-64														8														-	51	9(2)																									
	MB9AF312MA		LQFP-80														11														66	12(3)																										
	MB9AF312NA		LQFP-100 QFP-100 BGA-112														16														✓	83	16(3)																									
	MB9AF314LA		LQFP-64 QFN-64				256K	32K					7				-														51	9(2)	Multi-Function Timer x 1 unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)																					On-chip Debug (SWJ-DP)			
	MB9AF314MA		LQFP-80																														11																							66	12(3)	
	MB9AF314NA		LQFP-100 QFP-100 BGA-112																														16																							83	16(3)	
	MB9AF315MA		LQFP-80																														11																							66	12(3)	
	MB9AF315NA		LQFP-100 QFP-100 BGA-112**																														16																							✓	83	16(3)
	MB9AF316MA		LQFP-80																														11																							66	12(3)	
MB9AF316NA	LQFP-100 QFP-100 BGA-112**	16	83	16(3)																																																						

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Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bit AD Converter [ch(unit)]	12bit AD Converter [ch(unit)]	DA Converter [bit x ch]	Timer								Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device													
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SO [ch]	LIUART/SIO [ch]	CAN [ch]					USB-Host [ch]	USB-Function [ch]											
LOW-POWER GROUP																																															
MB9A340NA	MB9AF341LB	40	LQFP-64 QFN-64	1.65 to 3.6	✓	Dual Op. Flash (Main area + Work area)	64K +32K	16K	-	8	8	-	51	-	12(2)	-	-	-	-	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	-	1	Multi Function Serial x 8ch (UART/CSIO/FC Selectable)	-	1ch (USB-Host/ USB-Function Selectable)	-	-	HDMI-CEC/Remote Control Reception x 2, Real Time Clock, Unique ID	On-chip Debug (SWJ-DP)																		
	MB9AF341MB		LQFP-80 BGA-96								11	66	17(2)																																		
	MB9AF341NB		LQFP-100 QFP-100 BGA-112								16	✓	83																	24(2)																	
	MB9AF342LB		LQFP-64 QFN-64								8	-	51																	12(2)																	
	MB9AF342MB		LQFP-80 BGA-96				128K +32K	32K			11	66	-	17(2)	-														-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	On-chip Debug (SWJ-DP/ETM)
	MB9AF342NB		LQFP-100 QFP-100 BGA-112				16				✓	83	24(2)																																		
	MB9AF344LB		LQFP-64 QFN-64				8				-	51	12(2)																																		
	MB9AF344MB		LQFP-80 BGA-96				11				66	17(2)																																			
MB9AF344NB	LQFP-100 QFP-100 BGA-112	16	✓	83	24(2)																																										
MB9A140NA	MB9AF141LB	40	LQFP-64 QFN-64	1.65 to 3.6	✓	Dual Op. Flash (Main area + Work area)	64K +32K	16K	-	8	8	-	51	-	12(2)	-	-	-	-	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	-	1	Multi Function Serial x 8ch (UART/CSIO/FC Selectable)	-	-	-	-	Dual Timer, HDMI-CEC/Remote Control Reception x 2, Real Time Clock, Unique ID	On-chip Debug (SWJ-DP)																		
	MB9AF141MB		LQFP-80 BGA-96								11	66	17(2)																																		
	MB9AF141NB		LQFP-100 QFP-100 BGA-112								16	✓	83																	24(2)																	
	MB9AF142LB		LQFP-64 QFN-64								8	-	51																	12(2)																	
	MB9AF142MB		LQFP-80 BGA-96				128K +32K	32K			11	66	-	17(2)	-														-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	On-chip Debug (SWJ-DP/ETM)	
	MB9AF142NB		LQFP-100 QFP-100 BGA-112				16				✓	83																																			24(2)
	MB9AF144LB		LQFP-64 QFN-64				8				-	51																																			12(2)
	MB9AF144MB		LQFP-80 BGA-96				11				66	17(2)																																			
	MB9AF144NB		LQFP-100 QFP-100 BGA-112				16	✓			83	24(2)																																			

FM3 Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [bit]	Ext. Interrupt [bit]	External Bus	Maximum I/O port [bit]	10bit AD Converter [bit(unif)]	12bit AD Converter [bit(unif)]	DA Converter [bit x bit]	Timer							Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
																	Output Compare [bit]	Free-Run Timer [bit]	Input Capture [bit]	Reload Timer [bit]	PWM Timer [bit]	PWC Timer [bit]	PPG Timer [bit]	Up/Down Counter [bit]	Other timers [bit]	i ² C [bit]	UART/S ⁱ [bit]	SIO [bit]	LIN/UART/SIO [bit]				
ULTRA LOW LEAK GROUP																																	
MB9AAA0N	MB9AFAA1L	20	LQFP-64 QFN-64	1.8 to 5.5	✓	FLASH	64K	12K	-	-	-	-	-	-	9(1)	10bit x 2	Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	-	-	Multi Function Serial x 8ch (UART/CSIO/i ² C Selectable)	-	-	-	24 x 4 or 20 x 8 37 x 4 or 33 x 8 44 x 4 or 40 x 8 24 x 4 or 20 x 8 37 x 4 or 33 x 8 44 x 4 or 40 x 8	✓	HDMI-CEC/Remote Control Reception x 2, Real Time Clock	On-chip Debug (SWJ-DP)					
	MB9AFAA1M		LQFP-80																														
	MB9AFAA1N		LQFP-100 QFP-100																														
	MB9AFAA2L		LQFP-64 QFN-64				128K	16K							11														67	84	9(1)		
	MB9AFAA2M		LQFP-80																														
	MB9AFAA2N		LQFP-100 QFP-100																														
MB9A1A0N	MB9AF1A1L	20	LQFP-64 QFN-64	1.8 to 5.5	✓	FLASH	64K	12K	-	-	-	-	-	9(1)	10bit x 2	Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	-	-	Multi Function Serial x 8ch (UART/CSIO/i ² C Selectable)	-	-	-	-	✓	HDMI-CEC/Remote Control Reception x 2, Real Time Clock	On-chip Debug (SWJ-DP)						
	MB9AF1A1M		LQFP-80																														
	MB9AF1A1N		LQFP-100 QFP-100																														
	MB9AF1A2L		LQFP-64 QFN-64				128K	16K						8														52	9(1)				
	MB9AF1A2M		LQFP-80																														
	MB9AF1A2N		LQFP-100 QFP-100																														
MB9A130LA	MB9AF131LB	20	LQFP-64 QFN-64	1.8 to 5.5	✓	FLASH	64K	8K	-	-	-	-	8	37	-	Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)	Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)	-	-	Multi Function Serial x 8ch (UART/CSIO/i ² C Selectable)	-	-	-	-	✓	Real Time Clock	On-chip Debug (SWJ-DP)						
	MB9AF131KB		LQFP-48 QFN-48																														
	MB9AF132LB		LQFP-64 QFN-64				128K	6					52	8(1)																			
	MB9AF132KB		LQFP-48 QFN-48																														

FM0 + Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMA0 [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bitAD Converter [ch](unit)]	12bitAD Converter [ch](unit)]	DA Converter [bit x ch]	Timer							Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Devices		
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SIO [ch]	LIU/ART/SIO [ch]					CAN [ch]	USB-Host [ch]
S6E1C3	S6E1C32D0A	40	LQFP-64	1.65 to 3.6	✓	Main Flash	128K	16K	-	-	12	-	54	-	8	-	-	Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial x 6ch (UART/CSIO/I2C Selectable)			-	1ch (USB-Host/ USB-Function Selectable)	-	-	Dual Timer, Real Timer Clock, Unique ID, DSTC×64ch, Tiny I2S, Wakeup I2C, HDMI-CEC 2ch, CRC, Smart Card I/F	On-Chip Debug (SWJ-DP)		
	64K						12K	Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)																											
	S6E1C32C0A		LQFP-48				128K	16K			9		38		Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×4ch (UART/CSIO/I2C Selectable)													
	S6E1C31C0A						64K	12K					5		20			4	Multi Function Serial×2ch (UART/CSIO/I2C Selectable)																
	S6E1C32B0A		WLCSP-26				128K	16K			7		24		6			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×6ch (UART/CSIO/I2C Selectable)										
	S6E1C31B0A		LQFP-32				64K	12K					12		54			8	Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)															Multi Function Serial×4ch (UART/CSIO/I2C Selectable)	
	S6E1C32D0A		QFN-64				128K	16K			9		38		7				24	6	Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)													Multi Function Serial×6ch (UART/CSIO/I2C Selectable)	
	S6E1C31D0A						64K	12K					9					38	Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×4ch (UART/CSIO/I2C Selectable)									
	S6E1C32C0A		QFN-48				128K	16K			7		24		6			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×6ch (UART/CSIO/I2C Selectable)										
	S6E1C31C0A						64K	12K					9					38	Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)															Multi Function Serial×4ch (UART/CSIO/I2C Selectable)	
S6E1C32B0A	QFN-32	128K	16K	7	24	6	Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×6ch (UART/CSIO/I2C Selectable)																					
S6E1C31B0A		64K	12K		9		38	Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable)									Multi Function Serial×4ch (UART/CSIO/I2C Selectable)																		
S6E1C1	S6E1C12D0A	40	LQFP-64	1.65 to 3.6	✓	Main Flash	128K	16K	-	-	12	-	54	-	8	-	-	Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial x 6ch (UART/CSIO/I2C Selectable)			-	-	-	-	Dual Timer, Real Timer Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F	On-Chip Debug (SWJ-DP)		
	64K						12K	Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)																											
	S6E1C12C0A		LQFP-48				128K	16K			9		38		Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×4ch (UART/CSIO/I2C Selectable)													
	S6E1C11C0A						64K	12K					7		24			6	Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×6ch (UART/CSIO/I2C Selectable)									
	S6E1C12B0A		QFN-64				128K	16K			12		54		8			Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×4ch (UART/CSIO/I2C Selectable)										
	S6E1C11B0A						64K	12K					9					38	Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×6ch (UART/CSIO/I2C Selectable)									
	S6E1C12D0A		QFN-48				128K	16K			7		24		6			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×6ch (UART/CSIO/I2C Selectable)										
	S6E1C11D0A						64K	12K					9					38	Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)															Multi Function Serial×4ch (UART/CSIO/I2C Selectable)	
	S6E1C12C0A		QFN-32				128K	16K			7		24		6			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×6ch (UART/CSIO/I2C Selectable)										
	S6E1C11C0A						64K	12K					9					38	Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable)															Multi Function Serial×4ch (UART/CSIO/I2C Selectable)	
	S6E1C12B0A		QFN-32				128K	16K			7		24		6			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)							Multi Function Serial×6ch (UART/CSIO/I2C Selectable)										
	S6E1C11B0A						64K	12K					9					38	Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable)															Multi Function Serial×4ch (UART/CSIO/I2C Selectable)	

Traveo Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	12bit AD Converter [ch](unit)]	12bit AD Converter with 4ch sample & hold	DA Converter [bit x ch]	Timer								Serial		Communication		Three-phase Inverter	Note	Evaluation Device																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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S6J3120	S6J3128HA	112	TEQFP -144	4.5 to 5.25	-	Main Flash +Work Flash	576K + 48K	TC-RAM: 32KB System -RAM: 16KB Backup -RAM: 8KB	Instruction: 16 Data: 16	16	16	A24/D16	112	50(2)	-	-	12	6	12	16bit Base Timer x 30ch (PWM/PPG/Reload/PWC Selectable)	2	RTC x 1ch	Multi Function Serial x 10ch (LIN/UART/SIO Selectable)	CAN-FD x 3ch	-	-	32 x 4	-	ARM Cortex-R5, SHE(Secure Hardware Extension), SMC x 4ch, Sound generator x 3ch	On-Chip Debug																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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							S6J312AHA	1088K +112K																							TC-RAM: 64KB System -RAM: 16KB Backup -RAM: 8KB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
S6J3200	S6J32AAKS	160	TEQFP -208	1.1 to 1.3 3.0 to 3.6 4.5 to 5.5	✓	Main Flash +Work Flash	1088K + 112K	TC-RAM: 64KB System -RAM: 128KB Backup -RAM: 16KB VRAM: 1024KB	Instruction: 16 Data: 16	16	16	-	120	46(1)	-	-	24	12	24	Reload Timer x 14ch 16bit Base Timer x 24ch (PWM/PPG/Reload/PWC Selectable)	2	RTC x 1ch	Multi Function Serial x 12ch (LIN/UART/SIO/I2C Selectable)	CAN-FD x 4ch	-	-	30 x 4	-	ARM Cortex-R5, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 1ch	On-Chip Debug																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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	S6J32AALS		TEQFP -216 (0.4mm pitch)										128	50(1)													32 x 4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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	S6J32BAKS		TEQFP -208										120	46(1)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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	S6J32BALU		TEQFP -216 (0.4mm pitch)										128	50(1)													32 x 4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	S6J32CAKS		TEQFP -208										120	46(1)													30 x 4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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	S6J32CALS		TEQFP -216 (0.4mm pitch)										120	46(1)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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	S6J32DALU	TEQFP -216 (0.4mm pitch)	128	50(1)	32 x 4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

Traveo Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	12bit AD Converter [ch/unit]	12bit AD Converter with 4ch sample & hold	DA Converter [bit x ch]	Timer								Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I2C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]				
CAN/AUTOMOTIVE																																		
S6J3200	S6J323CKS	240	TEQFP -208	1.1 to 1.3 3.0 to 3.6 4.5 to 5.5	✓	Main Flash +Work Flash	2112K + 112K	TC-RAM: 128KB System - RAM: 128KB Backup - RAM: 16KB VRAM: 2048KB	Instruction: 16 Data: 16	16	16	-	120	46(1)	-	-	24	12	24	Reload Timer x 14ch 16bit Base Timer x 24ch (PWM/PPC/Reload/PWC Selectable)	2	RTC x 1ch	Multi Function Serial x 12ch (LIN/UART/SIO/I2C Selectable)	CAN-FD x 4ch	-	-	30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 2ch,	On-Chip Debug					
	S6J323CKU		TEQFP -216 (0.4mm pitch)																											32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 2ch,			
	S6J323CLS		TEQFP -208																											30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 2ch, Sound system,			
	S6J324CLU		TEQFP -216 (0.4mm pitch)																											32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 2ch, Sound system,			
	S6J325CKS		TEQFP -208																											30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch,			
	S6J325CKU		TEQFP -208																											30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch,			
	S6J325CLS		TEQFP -216 (0.4mm pitch)																											32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch,			
	S6J326CKS		TEQFP -208																											30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,			
	S6J326CKU		TEQFP -208																											30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,			
	S6J326CLS		TEQFP -216 (0.4mm pitch)																											32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,			
	S6J326CLU		TEQFP -216 (0.4mm pitch)																											32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,			
	S6J327CKS		TEQFP -208																											30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, Sound system,			
	S6J327CKU		TEQFP -208																											30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 2ch, Sound system,			
	S6J327CLS		TEQFP -216 (0.4mm pitch)																											32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 2ch, Sound system,			
	S6J327CLU		TEQFP -216 (0.4mm pitch)																											32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,			
	S6J328CKS		TEQFP -208																											30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,			
S6J328CKU	TEQFP -208	30 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,																															
S6J328CLS	TEQFP -216 (0.4mm pitch)	32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,																															
S6J328CLU	TEQFP -216 (0.4mm pitch)	32 x 4	ARM Cortex-R5, Ethernet AVB, Media-LB, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 2ch, FPD-Link, Sound system,																															

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FR Family – 32bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bit AD Converter [ch(unt)]	12bit AD Converter [ch(unt)]	DA Converter [bit x ch]	Timer								Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWC Timer [ch]	PPG Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]				
CAN/AUTOMOTIVE																																		
MB91590	MB91F591B	80	LQFP-208	3.0 to 3.6 4.5 to 5.5 (2 power supplies)	Main Flash +Work Flash	Dedicated for GDC External Memory	576K +64K	48K	-	16	16	32(1)	-	-	4	2	6	Reload Timer x 4ch + PPG Timer x 24ch + Base Timer x 2ch (Reload/PPG/PWM/PWC Selectable)	-	Multi Function Serial x 2ch (LIN/UART/ SIO/I2C Selectable)	6	3	-	-	-	-	CAN: 32/64Mseg-buffer, LIN, FPU, MPU, Sound generator, SMC x 6ch, From among the RAM, 8KB can be used as BackUpRAM, Built-in 2D GDC	On-chip Debug						
	MB91F591BS																																	
	MB91F591BH																																	
	MB91F591BHS																																	
	MB91F592B																																	
	MB91F592BS																																	
	MB91F592BH																																	
	MB91F592BHS																																	
	MB91F594B	1088K +64K	72K				-	16							16	32(1)	-	-	4	8	12	Reload Timer x 8ch + PPG Timer x 24ch + Base Timer x 2ch (Reload/PPG/PWM/PWC Selectable)	3	Multi Function Serial x 6ch (LIN/UART SIO/I2C Selectable. However, I2C only supports ch0/ ch1)	6	3			-	-	-	-		
	MB91F594BS																																	
	MB91F594BH																																	
	MB91F594BHS																																	
	MB91F59AC																																	
	MB91F59ACS																																	
	MB91F59ACH																																	
	MB91F59ACHS																																	
MB91F59BC	128	BGA-320	2112K +64K	264K	-	16	16	32(1)	-	-	4	8	12	Reload Timer x 8ch + PPG Timer x 24ch + Base Timer x 2ch (Reload/PPG/PWM/PWC Selectable)	3	Multi Function Serial x 6ch (LIN/UART SIO/I2C Selectable. However, I2C only supports ch0/ ch1)	6	3	-	-	-	-												
MB91F59BCS																																		
MB91F59BCH																																		
MB91F59BCHS																																		

F²MC-16FX – 16bit Microcontrollers

Series Name	Product Name	Maximum Internal Clock Frequency [MHz]	Package [pin]	Operating Voltage: VCC [V]	Sub Clock	Memory Type	ROM [byte]	RAM [byte]	Cache [Kbyte]	DMAC [ch]	Ext. Interrupt [ch]	External Bus	Maximum I/O port [ch]	10bit AD Converter [ch[unit]]	12bit AD Converter [ch[unit]]	DA Converter [bit x ch]	Timer								Serial			Communication			LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
																	Output Compare [ch]	Free-Run Timer [ch]	Input Capture [ch]	Reload Timer [ch]	PWM Timer [ch]	PWV Timer [ch]	PPQ Timer [ch]	Up/Down Counter [ch]	Other timers [ch]	I ² C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]				
AUTOMOTIVE																																		
MB96310	MB96F313AS	56	LQFP-48	3.0 to 5.5	FLASH	96K	8K	-	4	11	-	36	12(1)	-	-	2	4	4 +3 (Dedicated for LIN)	4 +1 (Dedicated for PPG)	-	-	14	-	-	-	-	3	-	-	-	-	-	LVD, built-in CR Option without CAN	MB96V300C
	✓																											1						
	-																																	
	✓																																	
	MB96F313AW					✓																												
	MB96F313RS					-																												
	MB96F313RW					✓																												
	MB96F315AS					✓																												
MB96F315AW	✓																																	
MB96F315RS	-																																	
MB96F315RW	✓																																	
MB96320	MB96F326AS	56	LQFP-80	3.0 to 5.5	FLASH	288K	12K	-	4	15	✓	66	18(1)	-	-	6	4	12	4 +1 (Dedicated for PPG)	-	-	20	-	-	1	-	-	4	-	-	-	-	LVD, built-in CR Option without CAN	MB96V300C
	✓																												-					
	-																																	
	✓																																	
	✓																																	
MB96F326RW	✓																																	
MB96330	MB96F336US	48	LQFP-144	3.0 to 5.5	FLASH	288K	24K	-	10	16	✓	124	36(1)	-	-	12	4	10	4 +1 (Dedicated for PPG)	-	-	20	-	-	2	-	-	8	1	1ch (USB-Host/ USB-Function Selectable)	-	-	LVD, built-in CR	MB96V300C
	✓																																	
	MB96F336UW					✓																												
	MB96F338RS					-																												
	MB96F338RW					-																												
	MB96F338US					-																												
MB96F338UW	✓																																	

F²MC-16FX – 16bit Microcontrollers

[illegible]



Cypress Semiconductor Corporation

198 Champion Court, San Jose CA 95134

phone +1 408.943.2600 fax +1 408.943.6848

toll free +1 800.858.1810 (U.S. only) Press "1" to reach your local sales representative

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