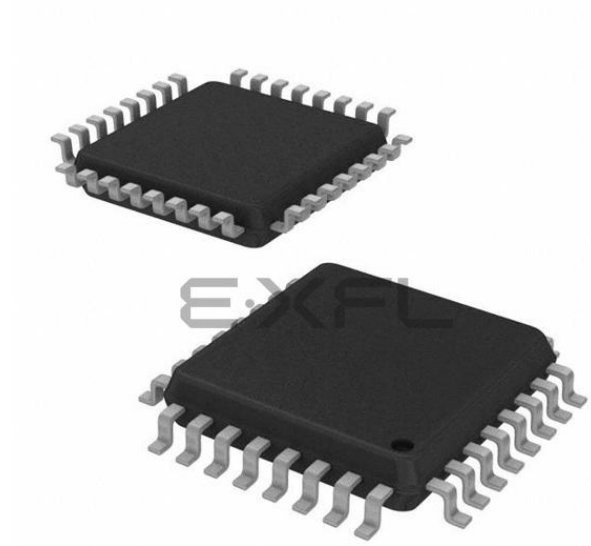
Infineon Technologies - MB95F636HNPMC-G116SNERE2 Datasheet



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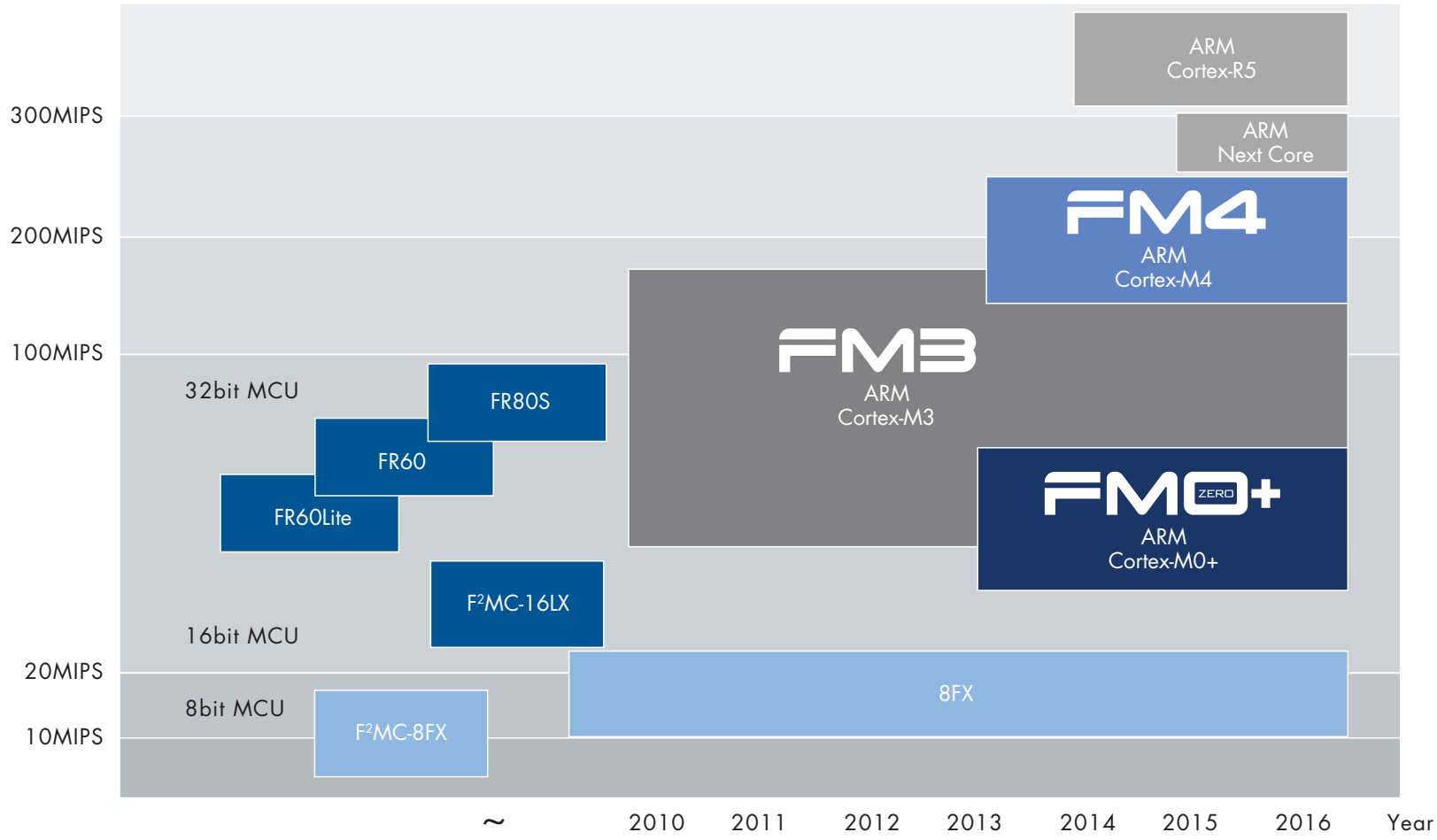
What is "Embedded - Microcontrollers"?

"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	F²MC-8FX
Core Size	8-Bit
Speed	16MHz
Connectivity	I²C, LINbus, SIO, UART/USART
Peripherals	POR, PWM, WDT
Number of I/O	28
Program Memory Size	36KB (36K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	1K x 8
Voltage - Supply (Vcc/Vdd)	2.4V ~ 5.5V
Data Converters	A/D 8x8/10b
Oscillator Type	External
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	32-LQFP
Supplier Device Package	32-LQFP (7x7)
Purchase URL	https://www.e-xfl.com/product-detail/infineon-technologies/mb95f636hnpmc-g116snere2

Consumer and Industrial 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), I^2C 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]	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]	I²C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]	USB-Function [ch]				
S6E2GH	S6E2GH8H0A	180	LQFP-144	2.7 to 5.5	✓	Main Flash	1024K	192K	-	8	32	✓	121	–	24 (3)	–	Multi-Function Timer x2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 6ch			Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)				QPRC x 4		Multi Function Serial x 10ch (UART/CSIO/I2C/LIN Selectable)				1	2ch (USB-Host/ USB-Function Selectable)		–	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, Tiny I2S, Smart Card I/F, SDC	On-Chip Debug (SWJ-DP/ ETM)
	S6E2GH8J0A		LQFP-176										153		32 (3)																			
	S6E2GH6H0A		LQFP-144				512K	128K					121		24 (3)																			
	S6E2GH6J0A		LQFP-176										153		32 (3)																			
S6E2G3	S6E2G38H0A	180	LQFP-144	2.7 to 5.5	✓	Main Flash	1024K	192K	-	8	32	✓	121	–	24 (3)	–	Multi-Function Timer x2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 6ch			Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)				QPRC x 4		Multi Function Serial x 10ch (UART/CSIO/I2C/LIN Selectable)				–	2ch (USB-Host/ USB-Function Selectable)		–	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, Tiny I2S, Smart Card I/F	On-Chip Debug (SWJ-DP/ ETM)
	S6E2G38J0A		LQFP-176										153		32 (3)																			
	S6E2G36H0A		LQFP-144				512K	128K					121		24 (3)																			
	S6E2G36J0A		LQFP-176										153		32 (3)																			
S6E2G2 w/security	S6E2G28HHA	180	LQFP-144	2.7 to 5.5	✓	Main Flash	1024K	192K	-	8	32	✓	121	–	24 (3)	–	Multi-Function Timer x2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 6ch			Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)				QPRC x 4		Multi Function Serial x 10ch (UART/CSIO/I2C/LIN Selectable)				–	2ch (USB-Host/ USB-Function Selectable)		–	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, Tiny I2S, Smart Card I/F, ETH, Chipher	On-Chip Debug (SWJ-DP/ ETM)
	S6E2G28JHA		LQFP-176										153		32 (3)																			
	S6E2G26HHA		LQFP-144				512K	128K					121		24 (3)																			
	S6E2G26JHA		LQFP-176										153		32 (3)																			
S6E2G2	S6E2G28H0A	180	LQFP-144	2.7 to 5.5	✓	Main Flash	1024K	192K	-	8	32	✓	121	–	24 (3)	–	Multi-Function Timer x2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 6ch			Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable)				QPRC x 4		Multi Function Serial x 10ch (UART/CSIO/I2C/LIN Selectable)				–	2ch (USB-Host/ USB-Function Selectable)		–	✓	Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, Tiny I2S, Smart Card I/F, ETH	On-Chip Debug (SWJ-DP/ ETM)
	S6E2G28J0A		LQFP-176										153		32 (3)																			
	S6E2G26H0A		LQFP-144				512K	128K					121		24 (3)																			
	S6E2G26J0A		LQFP-176										153		32 (3)																			
S6E2DH	S6E2DH5G0A	160	LQFP-120 TEQFP-120 BGA-161	2.7-3.6	✓	Main Flash	384K	36K	-	8	16	✓	98	-	24 (3)	-	Multi-Function Timer x 3units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG6ch			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)				QPRC x 1	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)				1	1ch (USB-Host/ USB-Function Selectable)		-	-	Dual Timer, Real Timer Clock, Unique ID, DSTC x128ch, CAN-FD 1ch, SDC, I2S 2ch, High Speed Quad SPI x1, Hyper Bus x1, GDC	On-Chip Debug (SWJ-DP/ETM)
	S6E2DH5GJA		LQFP-120 (SiP)										90																					
	S6E2DH5J0A		LQFP-176										154																					
S6E2DF	S6E2DF5G0A	160	LQFP-120 TEQFP-120 BGA-161	2.7-3.6	✓	Main Flash	384K	36K	-	8	16	✓	98	-	24 (3)	-	Multi-Function Timer x 3units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG6ch			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)				QPRC x 1	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)				1	1ch (USB-Host/ USB-Function Selectable)		-	-	Dual Timer, Real Timer Clock, Unique ID, DSTC x128ch, CAN-FD 1ch, I2S 2ch, High Speed Quad SPI x1, Hyper Bus x1, GDC	On-Chip Debug (SWJ-DP/ETM)
	S6E2DF5GJA		LQFP-120 (SiP)										90																					
	S6E2DF5J0A		LQFP-176										154																					
S6E2D5	S6E2D55G0A	160	LQFP-120 TEQFP-120 BGA-161	2.7-3.6	✓	Main Flash	384K	36K	-	8	16	✓	98	-	24 (3)	-	Multi-Function Timer x 3units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG6ch			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)				QPRC x 1	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)				-	1ch (USB-Host/ USB-Function Selectable)		-	-	Dual Timer, Real Timer Clock, Unique ID, DSTC x128ch, SDC, I2S 2ch, High Speed Quad SPI x1, Hyper Bus x1, GDC	On-Chip Debug (SWJ-DP/ETM)
	S6E2D55GJA		LQFP-120 (SiP)										90																					
	S6E2D55J0A		LQFP-176										154																					
S6E2D3	S6E2D35G0A	160	LQFP-120 TEQFP-120 BGA-161	2.7-3.6	✓	Main Flash	384K	36K	-	8	16	✓	98	-	24 (3)	-	Multi-Function Timer x 3units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG6ch			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)				QPRC x 1	1	Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)				-	1ch (USB-Host/ USB-Function Selectable)		-	-	Dual Timer, Real Timer Clock, Unique ID, DSTC x128ch, I2S 2ch, High Speed Quad SPI x1, Hyper Bus x1, GDC	On-Chip Debug (SWJ-DP/ETM)
	S6E2D35GJA		LQFP-120 (SiP)										90																					
	S6E2D35J0A		LQFP-176										154																					

** In development; **Planning*

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]	I²C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]	USB-Function [ch]				
S6E2C4	S6E2C4AH0A	200	LQFP-144	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	–	8	32	✓	120	–	24 (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)	–	–	–	✓	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)
	S6E2C4AJ0A		LQFP-176 BGA-192										152		32 (3)																			
	S6E2C4AL0A		LQFP-216										190																						
	S6E2C49H0A		LQFP-144				1.5M	196K					120		24 (3)																				
	S6E2C49J0A		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C49L0A		LQFP-216										190																						
	S6E2C48H0A		LQFP-144				1M	128K					120		24 (3)																				
	S6E2C48J0A		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C48L0A		LQFP-216										190																						
S6E2C3	S6E2C3AH0A	200	LQFP-144	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	–	8	32	✓	120	–	24 (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)				–	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)
	S6E2C3AJ0A		LQFP-176 BGA-192										152		32 (3)																			
	S6E2C3AL0A		LQFP-216										190																						
	S6E2C39H0A		LQFP-144				1.5M	192K					120		24 (3)																				
	S6E2C39J0A		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C39L0A		LQFP-216										190																						
	S6E2C38H0A		LQFP-144				1M	128K					120		24 (3)																				
	S6E2C38J0A		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C38L0A		LQFP-216										190																						
S6E2C2 w/ Security	S6E2C2AHHA	200	LQFP-144	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	–	8	32	✓	120	–	24 (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)				–	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)
	S6E2C2AJHA		LQFP-176 BGA-192										152		32 (3)																			
	S6E2C2ALHA		LQFP-216										190																						
	S6E2C29HHA		LQFP-144				1.5M	196K					120		24 (3)																				
	S6E2C29JHA		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C29LHA		LQFP-216										190																						
	S6E2C28HHA		LQFP-144				1M	128K					120		24 (3)																				
	S6E2C28JHA		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C28LHA		LQFP-216										190																						
S6E2C2	S6E2C2AH0A	200	LQFP-144	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	–	8	32	✓	120	–	24 (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)				–	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)
	S6E2C2AJ0A		LQFP-176 BGA-192										152		32 (3)																			
	S6E2C2AL0A		LQFP-216										190																						
	S6E2C29H0A		LQFP-144				1.5M	192K					120		24 (3)																				
	S6E2C29J0A		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C29L0A		LQFP-216										190																						
	S6E2C28H0A		LQFP-144				1M	128K					120		24 (3)																				
	S6E2C28J0A		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C28L0A		LQFP-216										190																						
S6E2C1	S6E2C1AH0A	200	LQFP-144	2.7 to 5.5	✓	Main Flash +Main Flash	2M	256K	–	8	32	✓	120	–	24 (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)				–	–		–	✓	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)
	S6E2C1AJ0A		LQFP-176 BGA-192										152		32 (3)																			
	S6E2C1AL0A		LQFP-216										190																						
	S6E2C19H0A		LQFP-144				1.5M	196K					120		24 (3)																				
	S6E2C19J0A		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C19L0A		LQFP-216										190																						
	S6E2C18H0A		LQFP-144				1M	128K					120		24 (3)																				
	S6E2C18J0A		LQFP-176 BGA-192										152		32 (3)																				
	S6E2C18L0A		LQFP-216										190																						

** In development; **Planning*

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]	I²C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]	USB-Function [ch]				
S6E2C1-E	S6E2C10H2A S6E2C10J2A S6E2C10L2A	200	LQFP-144 LQFP-176 BGA-192 LQFP-216	2.7 to 5.5	✓	-	0M	256K	-	8	32	✓	120	-	24 (3) 152	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)				–	–		–	✓	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, Chipher	On-Chip Debug (SWJ-DP/ETM/ HTM)
MB9B560R	MB9BF566M MB9BF566N MB9BF566R MB9BF567M MB9BF567N MB9BF567R MB9BF568M MB9BF568N MB9BF568R	160	LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144 LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144 LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144	2.7 to 5.5	✓	Main Flash +Work Flash	512K +32K 768K +32K 1024K +32K	64K 96K 128K	–	8	16	✓	63 80 100 63 80 100 63 80 100	–	16(3) 24(3) 16(3) 24(3) 16(3) 24(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/I2C/LIN Selectable)				2	1ch (USB-Host/ USB-Function Selectable)		–	✓	CAN: 32Msg-buffer, Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F	On-chip Debug (SWJ-DP/ETM)
MB9B460R	MB9BF466M MB9BF466N MB9BF466R MB9BF467M MB9BF467N MB9BF467R MB9BF468M MB9BF468N MB9BF468R	160	LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144 LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144 LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144	2.7 to 5.5 160	✓	Main Flash +Work Flash	512K +32K 768K +32K 1024K +32K	64K 96K 128K	–	8	16	✓	63 80 100 63 80 100 63 80 100	–	16(3) 24(3) 16(3) 24(3) 16(3) 24(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/I2C/LIN Selectable)				2	–	–	–	✓	CAN: 32Msg-buffer, Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F	On-chip Debug (SWJ-DP/ETM)
MB9B360R	MB9BF366M MB9BF366N MB9BF366R MB9BF367M MB9BF367N MB9BF367R MB9BF368M MB9BF368N MB9BF368R	160	LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144 LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144 LQFP-80 LQFP-100 QFP-100 BGA-112 LQFP-120 BGA-144	2.7 to 5.5	✓	Main Flash +Work Flash	512K +32K 768K +32K 1024K +32K	64K 96K 128K	–	8	16	✓	63 80 100 63 80 100 63 80 100	–	16(3) 24(3) 16(3) 24(3) 16(3) 24(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/I²C/LIN Selectable)				–	1ch (USB-Host/ USB-Function Selectable)		–	✓	Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F	On-chip Debug (SWJ-DP/ETM)

** In development; **Planning*

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]	I²C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]	USB-Function [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	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/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								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)																					
	MB9BF365K		LQFP-48 QFN-48				384K +32K	48K			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)																					
	MB9BF365L		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)																					
	MB9BF366K		LQFP-48 QFN-48				512K +32K	64K			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)																					
	MB9BF366L		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)																					

** In development; **Planning*

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^2C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]	USB-Function [ch]				
MB9B160L	MB9BF164K	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/I2C/LIN Selectable)				–	–	–	–	✓	Dual Timer, Real Time Clock, Unique ID, DSTC x 128ch	On-chip Debug (SWJ-DP)
	MB9BF164L		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)																				
	MB9BF165K		LQFP-48 QFN-48				384K +32K	48K			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)																				
	MB9BF165L		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)																				
	MB9BF166K		LQFP-48 QFN-48				512K +32K	64K			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)																				
	MB9BF166L		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)																				

** In development; **Planning*

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: Output Compare [ch]	Timer: Free-Run Timer [ch]	Timer: Input Capture [ch]	Timer: Reload Timer [ch]	Timer: PWM Timer [ch]	Timer: PWC Timer [ch]	Timer: PPG Timer [ch]	Timer: Up/Down Counter [ch]	Timer: Other timers [ch]	Serial: I²C [ch]	Serial: UART/SI [ch]	Serial: SIO [ch]	Serial: LIN/UART/SIO [ch]	Communication: CAN [ch]	Communication: USB-Host [ch]	Communication: USB-Function [ch]	LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
BASIC GROUP																																				
MB9A310A	MB9AF311LA	40	LQFP-64 QFN-64	2.7 to 5.5	✓	FLASH	64K	16K	-	8	8	-	51	-	9(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 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)		Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)																	
	MB9AF311NA		LQFP-100 QFP-100 BGA-112								16	✓	83		16(3)																				On-chip Debug (SWJ-DP/ETM)
	MB9AF312LA		LQFP-64 QFN-64				128K				8	-	51		9(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)																On-chip Debug (SWJ-DP)
	MB9AF312MA		LQFP-80								11		66		12(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)																	
	MB9AF312NA		LQFP-100 QFP-100 BGA-112								16	✓	83		16(3)																				On-chip Debug (SWJ-DP/ETM)
	MB9AF314LA		LQFP-64 QFN-64				256K	32K			7	-	51		9(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)																On-chip Debug (SWJ-DP)
	MB9AF314MA		LQFP-80								11		66		12(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)																	
	MB9AF314NA		LQFP-100 QFP-100 BGA-112								16		83		16(3)																				On-chip Debug (SWJ-DP/ETM)
	MB9AF315MA		LQFP-80				384K				11		66		12(3)																				On-chip Debug (SWJ-DP)
	MB9AF315NA		LQFP-100 QFP-100 BGA-112**								16	✓	83		16(3)																				On-chip Debug (SWJ-DP/ETM)
	MB9AF316MA		LQFP-80				512K				11		66		12(3)																				On-chip Debug (SWJ-DP)
	MB9AF316NA		LQFP-100 QFP-100 BGA-112**								16		83		16(3)																				On-chip Debug (SWJ-DP/ETM)

** In development; **Planning*

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: Output Compare [ch]	Timer: Free-Run Timer [ch]	Timer: Input Capture [ch]	Timer: Reload Timer [ch]	Timer: PWM Timer [ch]	Timer: PWC Timer [ch]	Timer: PPG Timer [ch]	Timer: Up/Down Counter [ch]	Timer: Other timers [ch]	Serial: I²C [ch]	Serial: UART/SI [ch]	Serial: SIO [ch]	Serial: LIN/UART/SIO [ch]	Communication: CAN [ch]	Communication: USB-Host [ch]	Communication: USB-Function [ch]	LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
ULTRA LOW LEAK GROUP																																				
MB9AAA0N	MB9AFAA1L	20	LQFP-64 QFN-64	1.8 to 5.5	✓	FLASH	64K	12K	–	–	8	–	52	–	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/I²C Selectable)				–	–	–	24 x 4 or 20 x 8	✓	HDMI-CEC/Remote Control Reception x 2, Real Time Clock	On-chip Debug (SWJ-DP)
	MB9AFAA1M		LQFP-80								11		67		12(1)																	37 x 4 or 33 x 8			
	MB9AFAA1N		LQFP-100 QFP-100								16		84		16(1)																	44 x 4 or 40 x 8			
	MB9AFAA2L		LQFP-64 QFN-64				128K	16K			8		52		9(1)																	24 x 4 or 20 x 8			
	MB9AFAA2M		LQFP-80								11		67		12(1)																	37 x 4 or 33 x 8			
	MB9AFAA2N		LQFP-100 QFP-100								16		84		16(1)																	44 x 4 or 40 x 8			
MB9A1A0N	MB9AF1A1L	20	LQFP-64 QFN-64	1.8 to 5.5	✓	FLASH	64K	12K	–	–	8	–	52	–	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/I²C Selectable)				–	–	–	–	✓	HDMI-CEC/Remote Control Reception x 2, Real Time Clock	On-chip Debug (SWJ-DP)
	MB9AF1A1M		LQFP-80								11		67		12(1)																				
	MB9AF1A1N		LQFP-100 QFP-100								16		84		16(1)																				
	MB9AF1A2L		LQFP-64 QFN-64				128K	16K			8		52		9(1)																				
	MB9AF1A2M		LQFP-80								11		67		12(1)																				
	MB9AF1A2N		LQFP-100 QFP-100								16		84		16(1)																				
MB9A130LA	MB9AF131LB	20	LQFP-64 QFN-64	1.8 to 5.5	✓	FLASH	64K	8K	–	–	8	–	52	–	8(1)	–	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/I2C Selectable)				–	–	–	–	✓	Real Time Clock	On-chip Debug (SWJ-DP)
	MB9AF131KB		LQFP-48 QFN-48								6		37		6(1)										Multi Function Serial x 4ch (UART/CSIO/I2C Selectable, CSIO/I2C up to 3ch)										
	MB9AF132LB		LQFP-64 QFN-64				128K				8		52		8(1)										Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)										
	MB9AF132KB		LQFP-48 QFN-48								6		37		6(1)										Multi Function Serial x 4ch (UART/CSIO/I2C Selectable, CSIO/I2C up to 3ch)										

** In development; **Planning*

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]	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]	I²C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]	USB-Function [ch]				
S6E1A	S6E1A11B0A	40	LQFP-32 QFN-32	2.7 to 5.5	✓	Flash	56K	6K	–	2	8	–	23	–	5(1)	–	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 4ch (Reload/PPG/PWM/ PWC Selectable)				QPRC x 1	1	Multi Function Serial x 3ch (UART/CSIO/I²C/LIN Selectable)				–	–		–	✓	Dual Timer, Real Time Clock, Unique ID, Fast I/O	On-chip Debug (SW-DP/MTB)
	S6E1A12B0A		LQFP-32 QFN-32				88K						23		5(1)																				
	S6E1A11C0A		LQFP-48 LQFP-52 QFN-48				56K						37		8(1)																				
	S6E1A12C0A		LQFP-48 LQFP-52 QFN-48				88K						37		8(1)																				
S6E1B8 w/security	S6E1B86GHA	40	LQFP-120	1.65 to 3.6	✓	Main Flash +Work Flash	512K + 40K	64K	–	–	24	–	102	–	24	-	Multi-Function Timer x 1units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /PPG3ch/Waveform Generator 3ch /AD Activation Compare 6ch Selectable), PPG3ch			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)				–	1	Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)				–	1ch (USB-Host/ USB-Function Selectable)		40 SEG x 8 COM / 44 SEG x 4 COM	–	Dual Timer, Real Time Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F, Chipher	On-Chip Debug (SWJ-DP/ Boundary SCAN)
	S6E1B84GHA						256K + 40K	32K																										
	S6E1B86FHA		LQFP-100				512K + 40K	64K					82		23																	32 SEG x 8 COM / 36 SEG x 4 COM				
	S6E1B84FHA						256K + 40K	32K																										
	S6E1B86EHA		BGA-96/ LQFP-80/ WLCSP-80				512K + 40K	64K					65		16																	20 SEG x 8 COM / 24 SEG x 4 COM				
	S6E1B84EHA						256K + 40K	32K																										
S6E1B8	S6E1B86G0A	40	LQFP-120	1.65 to 3.6	✓	Main Flash +Work Flash	512K + 40K	64K	–	–	24	–	102	–	24	-	Multi-Function Timer x 1units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /PPG3ch/Waveform Generator 3ch /AD Activation Compare 6ch Selectable), PPG3ch			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)				–	1	Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)				–	1ch (USB-Host/ USB-Function Selectable)		40 SEG x 8 COM / 44 SEG x 4 COM	–	Dual Timer, Real Time Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F	On-Chip Debug (SWJ-DP/ Boundary SCAN)
	S6E1B84G0A						256K + 40K	32K																										
	S6E1B86F0A		LQFP-100				512K + 40K	64K					82		23																	32 SEG x 8 COM / 36 SEG x 4 COM				
	S6E1B84F0A						256K + 40K	32K																										
	S6E1B86E0A		BGA-96/ LQFP-80/ WLCSP-80				512K + 40K	64K					65		16																	20 SEG x 8 COM / 24 SEG x 4 COM				
	S6E1B84E0A						256K + 40K	32K																										
S6E1B3	S6E1B36G0A	40	LQFP-120	1.65 to 3.6	✓	Main Flash +Work Flash	512K + 40K	64K	–	–	24	–	102	–	24	-	Multi-Function Timer x 1units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /PPG3ch/Waveform Generator 3ch /AD Activation Compare 6ch Selectable), PPG3ch			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)				–	1	Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)				–	1ch (USB-Host/ USB-Function Selectable)		–	–	Dual Timer, Real Time Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F	On-Chip Debug (SWJ-DP/ Boundary SCAN)
	S6E1B34G0A						256K + 40K	32K																										
	S6E1B36F0A		LQFP-100				512K + 40K	64K					82		23																	–			
	S6E1B34F0A						256K + 40K	32K																										
	S6E1B36E0A		BGA-96/ LQFP-80/ WLCSP-80				512K + 40K	64K					65		16																	–			
	S6E1B34E0A						256K + 40K	32K																										
S6E1B1	S6E1B16G0A	40	LQFP-120	1.65 to 3.6	✓	Main Flash +Work Flash	512K + 40K	64K	–	–	24	–	102	–	24	-	Multi-Function Timer x 1units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /PPG3ch/Waveform Generator 3ch /AD Activation Compare 6ch Selectable), PPG3ch			Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)				–	1	Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)				–	–		–	–	Dual Timer, Real Time Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F	On-Chip Debug (SWJ-DP/ Boundary SCAN)
	S6E1B14G0A						256K + 40K	32K																										
	S6E1B16F0A		LQFP-100				512K + 40K	64K					82		23																	–			
	S6E1B14F0A						256K + 40K	32K																										
	S6E1B16E0A		LQFP-80				512K + 40K	64K					65		16																	–			
	S6E1B14E0A						256K + 40K	32K																										

** In development; **Planning*

8FX – 8bit 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]	I²C [ch]	UART/SI [ch]	SIO [ch]	LIN/UART/SIO [ch]	CAN [ch]	USB-Host [ch]	USB-Function [ch]				
STANDARD																																			
MB95650L	MB95F652E	16	TSSOP-24 SOP-24 QFN-32	1.8 to 5.5	✓	Dual Op. Flash	8K	256	-	-	6	-	21	-	6(1)	-	-	8/16bit Compound Timer x 2ch (Interval Timer/PWM/PWC/ Input Capture Selectable)	-	-	-	2	1	-	1	-	-	-	-	-	Low-voltage Detection Reset, Clock Supervisor	On-chip Debug
	MB95F652L												20																					Clock Supervisor	
	MB95F653E						12K	512					21																					Low-voltage Detection Reset, Clock Supervisor	
	MB95F653L												20																					Clock Supervisor	
	MB95F654E						20K	1024					21																					Low-voltage Detection Reset, Clock Supervisor	
	MB95F654L												20																					Clock Supervisor	
	MB95F656E						36K						21																					Low-voltage Detection Reset, Clock Supervisor	
	MB95F656L												20																					Clock Supervisor	
MB95810K	MB95F814K	16	LQFP-64	2.88 to 5.5	✓	Dual Op. Flash	20K	512	-	-	12	-	58	12(1)	-	-	-	Reload Timer x 1ch + 8/16bit Compound Timer x 2ch (Interval Timer/PWM/PWC/ Input Capture Selectable)	4	-	-	1	1	-	1	-	-	-	-	-	-	-	Low-voltage Detection Reset, Clock Supervisor	On-chip Debug
	MB95F816K						36K	1K																											
	MB95F818K						60K	2K																											

** In development; **Planning*

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 4-ch sample & hold	DA Converter [bit x ch]	Timer: Output Compare [ch]	Timer: Free-Run Timer [ch]	Timer: Input Capture [ch]	Timer: Reload Timer [ch]	Timer: PWM Timer [ch]	Timer: PWC Timer [ch]	Timer: PPG Timer [ch]	Timer: Up/Down Counter [ch]	Timer: Other timers [ch]	Serial: I2C [ch]	Serial: UART/SI [ch	Serial: SIO [ch]	Serial: LIN/UART/SIO [ch]	Communication: CAN [ch]	Communication: USB-Host [ch]	Communication: USB-Function [ch]	LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
CAN/AUTOMOTIVE																																				
MB9D560	MB9DF564MA	200	TEQFP -208	1.1 to 1.3 4.5 to 5.5	–	Main Flash +Work Flash	(640K +64K) x2	64K x2	–	16	8	-	125	32(1)	8(2)	10bit x 2	32bitFree-Run Timer x 5ch 32bitInput Capture x 3unit 6ch 16bitFree-Run Timer x 20ch 16bit Input Capture x 8unit 15ch 16bitOutput Compare x 12unit 24ch Waveform Generator x 4unit 24ch	16bit Base Timer x 12ch (PWM/PPG/Reload/PWC Selectable)	4	–	Multi Function Serial x 5ch (LIN/UART/SIO Selectable)	3	–	–	–	✓	ARM Cortex-R5 CAN: 64msb, RDC x 2unit, Motor vector accelaretor x 2unit Models with A suffix on part number have no built-in FlexRay. Models with G suffix on part number have built-in FlexRay.	On-Chip Debug
	MB9DF564MG						(896K +64K) x2	96K x2																												
	MB9DF565MA																																			
	MB9DF565MG																																			
	MB9DF566MA						(1152K +64K) x2	128K x2																													
	MB9DF566MG																																			
	MB9DF564ML						(640K + 64K) x 2	64K x 2					149																							ARM Cortex-R5 Motor vector accelaretor x 2unit Models with L suffix on part number have no built-in FlexRay. Models with Q suffix on part number have built-in FlexRay.	
	MB9DF564MQ																																			
	MB9DF565ML						(896K + 64K) x 2	96K x 2																													
	MB9DF565MQ																																			
	MB9DF566ML						(1152K + 64K) x 2	128K x 2																													
	MB9DF566MQ																																			
	MB9DF564LA		TEQFP -176				(640K + 64K) x 2	64K x 2					98				32bitFree-Run Timer x 5ch 32bitInput Capture x 3unit 6ch 16bitFree-Run Timer x 20ch 16bit Input Capture x 7unit 13ch 16bitOutput Compare x 9unit 18ch Waveform Generator x 3unit 18ch	16bit Base Timer x 6ch (PWM/PPG/Reload/PWC Selectable)			Multi Function Serial x 3ch (LIN/UART/SIO Selectable)						ARM Cortex-R5 RDC x 2unit Motor vector accelaretor x 2unit Models with A suffix on part number have no built-in FlexRay. Models with G suffix on part number have built-in FlexRay.	
	MB9DF564LG																																			
	MB9DF565LA						(896K + 64K) x 2	96K x 2																													
	MB9DF565LG																																			
	MB9DF566LA						(1152K + 64K) x 2	128K x 2																													
	MB9DF566LG																																			
	MB9DF564LL						(640K + 64K) x 2	64K x 2					122																							ARM Cortex-R5 Motor vector accelaretor x 2unit Models with L suffix on part number have no built-in FlexRay. Models with Q suffix on part number have built-in FlexRay.	
	MB9DF564LQ																																			
	MB9DF565LL						(896K + 64K) x 2	96K x 2																													
	MB9DF565LQ																																			
	MB9DF566LL						(1152K + 64K) x 2	128K x 2																													
	MB9DF566LQ																																			

** In development; **Planning*

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 4-ch 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]	USB-Host [ch]	USB-Function [ch]				
CAN/AUTOMOTIVE																																			
S6J3110	S6J3118HA	96	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	-	116	56(2)	-	-	12	6	12	16bit Base Timer x 30ch (PWM/PPG/Reload/PWC Selectable)	-	RTC x 1ch	Multi Function Serial x 4ch (LIN/UART/SIO Selectable)				CAN - FD x 1ch	-	-	-	-	ARM Cortex-R5, SHE(Secure Hardware Extension),	On-Chip Debug
	S6J3119HA						832K + 48K	TC-RAM: 48KB System - RAM: 16KB Backup - RAM: 8KB																												
	S6J311AHA						1088K + 48K	TC-RAM: 64KB System - RAM: 16KB Backup - RAM: 8KB																												
	S6J311BHA	144					1600K + 112K	192K						64(2)									Multi Function Serial x 22ch (LIN/UART/SIO Selectable)				CAN - FD x 2ch	-	-	-	-	ARM Cortex-R5, SHE(Secure Hardware Extension),	
	S6J311CHA						2112K + 112K	256K																											
	S6J311DHA						3136K + 112K	320K																											
	S6J311EHA						4160K + 112K	TC-RAM: 64KB System - RAM: 256KB Backup - RAM: 64KB																												
	S6J311BJA		TEQFP -176				1600K + 112K	192K					150																						
	S6J311CJA						2112K + 112K	256K																											
	S6J311DJA						3136K + 112K	320K																											
	S6J311EJA						4160K + 112K	TC-RAM: 64KB System - RAM: 256KB Backup - RAM: 64KB																												

** In development; **Planning*

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]	USB-Host [ch]	USB-Function [ch]				
CAN/AUTOMOTIVE																																			
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
	S6J3129HA						832K + 48K	TC-RAM: 48KB System - RAM: 16KB Backup - RAM: 8KB																											
	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
	S6J32AAKU												128	50(1)																			32 x 4		
	S6J32AALS		TEQFP -216 (0.4mm pitch)										120	46(1)																			30 x 4		ARM Cortex-R5, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 1ch, Sound system,
	S6J32AALU												128	50(1)																			32 x 4		
	S6J32BAKS		TEQFP -208										120	46(1)																			30 x 4		ARM Cortex-R5, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D Graphic Engine, Display Output x 1ch, Sound system,
	S6J32BAKU												128	50(1)																			32 x 4		
	S6J32BALS		TEQFP -216 (0.4mm pitch)										120	46(1)																			30 x 4		ARM Cortex-R5, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 1ch,
	S6J32BALU												128	50(1)																			32 x 4		
	S6J32CAKS		TEQFP -208										120	46(1)																			30 x 4		ARM Cortex-R5, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 1ch, Sound system,
	S6J32CAKU												128	50(1)																			32 x 4		
	S6J32CALS		TEQFP -216 (0.4mm pitch)										120	46(1)																			30 x 4		ARM Cortex-R5, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 1ch, Sound system,
	S6J32CALU												128	50(1)																			32 x 4		
	S6J32DAKS		TEQFP -208										120	46(1)																			30 x 4		ARM Cortex-R5, SHE(Secure Hardware Extension), SMC x 6ch, Sound generator x 4ch, 2D+3D Graphic Engine, Display Output x 1ch, Sound system,
	S6J32DAKU												128	50(1)																			32 x 4		
	S6J32DALS		TEQFP -216 (0.4mm pitch)										120	46(1)																			30 x 4		
	S6J32DALU												128	50(1)																			32 x 4		

** In development; **Planning*

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-4-ch sample & hold	DA Converter [bit x ch]	Timer: Output Compare [ch]	Timer: Free-Run Timer [ch]	Timer: Input Capture [ch]	Timer: Reload Timer [ch]	Timer: PWM Timer [ch]	Timer: PWC Timer [ch]	Timer: PPG Timer [ch]	Timer: Up/Down Counter [ch]	Timer: Other timers [ch]	Serial: I2C [ch]	Serial: UART/SI [ch	Serial: SIO [ch]	Serial: LIN/UART/SIO [ch]	Communication: CAN [ch]	Communication: USB-Host [ch]	Communication: USB-Function [ch]	LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
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/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, 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																																		
	S6J323CLS																																		
	S6J323CLU		TEQFP -216 (0.4mm pitch)										128	50(1)																			32 x 4			
	S6J324CKS		TEQFP -208										120	46(1)																			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,	
	S6J324CKU																																		
	S6J324CLS																																		
	S6J324CLU		TEQFP -216 (0.4mm pitch)										128	50(1)																			32 x 4			
	S6J325CKS		TEQFP -208										120	46(1)																			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																																		
	S6J325CLS																																		
	S6J325CLU		TEQFP -216 (0.4mm pitch)										128	50(1)																			32 x 4			
	S6J326CKS		TEQFP -208										120	46(1)																			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																																		
	S6J326CLS																																		
	S6J326CLU		TEQFP -216 (0.4mm pitch)										128	50(1)																			32 x 4			
	S6J327CKS		TEQFP -208										120	46(1)																			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	
	S6J327CKU																																		
	S6J327CLS																																		
	S6J327CLU		TEQFP -216 (0.4mm pitch)										128	50(1)																			32 x 4			
	S6J328CKS		TEQFP -208										120	46(1)																			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																																		
	S6J328CLS																																		
	S6J328CLU		TEQFP -216 (0.4mm pitch)										128	50(1)																			32 x 4			

** In development; **Planning*

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/unit]	12bit AD Converter [ch/unit]	DA Converter [bit x ch]	Timer: Output Compare [ch]	Timer: Free-Run Timer [ch]	Timer: Input Capture [ch]	Timer: Reload Timer [ch]	Timer: PWM Timer [ch]	Timer: PWC Timer [ch]	Timer: PPG Timer [ch]	Timer: Up/Down Counter [ch]	Timer: Other timers [ch]	Serial: I²C [ch]	Serial: UART/SI [ch]	Serial: SIO [ch]	Serial: LIN/UART/SIO [ch]	Communication: CAN [ch]	Communication: USB-Host [ch]	Communication: USB-Function [ch]	LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
CAN/AUTOMOTIVE																																				
MB91590	MB91F591B	80	LQFP-208	3.0 to 3.6 4.5 to 5.5 (2 power supplies)	✓	Main Flash +Work Flash	576K +64K	48K	–	16	16	Dedicated for GDC External Memory	61	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: 32/64Msg-buffer, LIN, FPU, MPU, Sound generator, SMC x 6ch, From among the RAM, 8KB can be used as BackUpRAM, Built-in 2D GDC For models with H suffix on part number, the initial status of the clock supervisor is off	On-chip Debug
	MB91F591BS				–								63																							
	MB91F591BH				✓								61																							
	MB91F591BHS				–								63																							
	MB91F592B				✓								61																							
	MB91F592BS				–								63																							
	MB91F592BH				✓								61																							
	MB91F592BHS				–								63																							
	MB91F594B				✓		1088K +64K	72K					61																							
	MB91F594BS				–								63																							
	MB91F594BH				✓								61																							
	MB91F594BHS				–								63																							
	MB91F59AC	128	BGA-320		✓		1600K +64K	264K					61				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)											
	MB91F59ACS				–								63																							
	MB91F59ACH				✓								61																							
	MB91F59ACHS				–								63																							
	MB91F59BC				✓		2112K +64K	264K					61																							
	MB91F59BCS				–								63																							
	MB91F59BCH				✓								61																							
	MB91F59BCHS				–								63																							

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: Output Compare [ch]	Timer: Free-Run Timer [ch]	Timer: Input Capture [ch]	Timer: Reload Timer [ch]	Timer: PWM Timer [ch]	Timer: PWC Timer [ch]	Timer: PPG Timer [ch]	Timer: Up/Down Counter [ch]	Timer: Other timers [ch]	Serial: I²C [ch]	Serial: UART/SI [ch]	Serial: SIO [ch]	Serial: LIN/UART/SIO [ch]	Communication: CAN [ch]	Communication: USB-Host [ch]	Communication: USB-Function [ch]	LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
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
	MB96F313AW				✓								34																	1						
	MB96F313RS				–								36																	–						
	MB96F313RW				✓								34																	1						
	MB96F315AS				–		160K						36																							
	MB96F315AW				✓								34																							
	MB96F315RS				–								36																							
	MB96F315RW				✓								34																							
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
	MB96F326AW				✓								64																	2						
	MB96F326RS				–								66																							
	MB96F326RW				✓								64																							
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				✓								122																							
	MB96F338RS				–		544K	32K					124	40(1)																3	–	–				
	MB96F338RW				✓								122																							
	MB96F338US				–								120	36(1)																						
	MB96F338UW				✓								118																		1ch (USB-Host/ USB-Function Selectable)					

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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: Output Compare [ch]	Timer: Free-Run Timer [ch]	Timer: Input Capture [ch]	Timer: Reload Timer [ch]	Timer: PWM Timer [ch]	Timer: PWC Timer [ch]	Timer: PPG Timer [ch]	Timer: Up/Down Counter [ch]	Timer: Other timers [ch]	Serial: I^2C [ch]	Serial: UART/SI [ch]	Serial: SIO [ch]	Serial: LIN/UART/SIO [ch]	Communication: CAN [ch]	Communication: USB-Host [ch]	Communication: USB-Function [ch]	LCD Controller [seg x com]	Three-phase Inverter	Note	Evaluation Device
AUTOMOTIVE																																				
MB96340	MB96345RS	56	LQFP-100	3.0 to 5.5	–	MASK	160K	8K	–	6	16	✓	82	24(1)	–	–	8	2	8	4 +1 (Dedicated for PPG)	–	16	–	–	–	2	–	–	7	2	–	–	–	–	Option without CAN	MB96V300C
	MB96345RW				✓								80																						
	MB96346RS				–		288K	16K					82																						
	MB96346RW				✓								80																						
	MB96F345DS	40			–	FLASH	160K +64K	8K					82																	1					
	MB96F345DW				✓								80																						
	MB96F346AS	56			–		288K	16K					82																	-					
	MB96F346AW				✓								80																						
	MB96F346RS				–								82																	2					
	MB96F346RW				✓								80																						
	MB96F347AS				–		416K						82																	-					
	MB96F347AW				✓								80																						
	MB96F347RS				–								82																	2					
	MB96F347RW				✓								80																						
	MB96F348AS				–		544K	24K					82																	-					
	MB96F348AW				✓								80																						
	MB96F348RS				–								82																	2					
	MB96F348RW				✓								80																						
	MB96F348HS				–		544K +32K						82																4						
	MB96F348HW				✓								80																						
MB96350	MB96F353AS	56	LQFP-64	3.0 to 5.5	–	FLASH	96K	8K	–	4	13	✓	51	15(1)	–	–	4	4	6 +3 (Dedicated for LIN)	4 +1 (Dedicated for PPG)	–	–	20	–	–	1	–	–	4	1	–	–	–	–	Option without CAN	MB96V300C
	MB96F353AW				✓								49																						
	MB96F353RS				–								51																						
	MB96F353RW				✓								49																						
	MB96F355AS				–		160K						51																						
	MB96F355AW				✓								49																						
	MB96F355RS				–								51																						
	MB96F355RW				✓								49																						
	MB96F356AS				–		288K	12K					51																						
	MB96F356AW				✓								49																						
	MB96F356RS				–								51																						
	MB96F356RW				✓								49																						
MB96370	MB96F378HS	40	LQFP-144	3.0 to 5.5	–	FLASH	544K +32K	28K	–	7	8	✓	120	22(1)	–	–	6	2	8	4 +1 (Dedicated for PPG)	–	–	12	–	–	2	–	–	6	2	–	–	72 x 4	-	SMC x 6ch Sound generator x 2ch	MB96V300C
	MB96F378HW				✓								118																						
	MB96F379RS				–		832K	32K					120																						
	MB96F379RW				✓								118																						
MB96380	MB96384RS	56	LQFP-120	3.0 to 5.5	–	MASK	128K	6K	–	7	8	✓	96	16(1)	–	–	4	2	8	4 +1 (Dedicated for PPG)	5	–	8	–	–	1	–	–	5	1	–	–	65 x 4	–	SMC x 5ch Sound generator x 2ch	MB96V300C
	MB96384RW				✓								94																						
	MB96385RS				–		160K	8K					96																						
	MB96385RW				✓								94																						
	MB96F385RS	40			–	FLASH	160K	6K					96																						
	MB96F385RW				✓								94																						
	MB96F386RS	56			–		288K	16K					96																	2					
	MB96F386RW				✓								94																						
	MB96F387RS				–		416K						96																						
	MB96F387RW				✓								94																						
	MB96F388HS	40			–		544K +32K	28K					96																						
	MB96F388HW				✓								94																						
	MB96F389RS				–		544K +288K	32K					96																						
	MB96F389RW				✓								94																						
MB96390	MB96393RS	40	LQFP-100	3.0 to 5.5	–	MASK	96K	5K	–	–	8	–	76	11(1)	–	–	4	2	4	4 +1 (Dedicated for PPG)	4	–	4	–	–	1	–	–	3	1	–	–	49 x 4	–	SMC x 4ch Sound generator x 1ch	MB96V300C
	MB96393RW				✓								74																						
	MB96395RS				–		160K	8K					76																						
	MB96395RW				✓								74																						
	MB96F395RS				–	FLASH	160K						76																						
	MB96F395RW				✓								74																						

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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]	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]	USB-Host [ch]	USB-Function [ch]				
AUTOMOTIVE																																				
MB96610	MB96F612A MB96F612R MB96F613A MB96F613R MB96F615A MB96F615R	32	LQFP-48	2.7 to 5.5	✓	Dual Op. Flash	32.5K +32K 64.5K +32K 128.5K +32K	4K 10K	–	2	11	–	37 (Single clock) 35 (Dual clock)	16(1)	–	–	5	4	4 +3 (Dedicated for LIN)	2 +1 (Dedicated for PPG)	–	–	8bit x 16 16bit x 8	-	QPRC x 2	–	–	-	3	– 1 – 1 – 1	–	–	–	–	Option without CAN	On-chip Debug
MB96620	MB96F622A MB96F622R MB96F623A MB96F623R MB96F625A MB96F625R	32	LQFP-64	2.7 to 5.5	✓	Dual Op. Flash	32.5K +32K 64.5K +32K 128.5K +32K	4K 10K	–	2	13	–	52 (Single clock) 50 (Dual clock)	21(1)	–	–	6	4	6 +2 (Dedicated for LIN)	2 +1 (Dedicated for PPG)	-	-	8bit x 16 16bit x 8	-	QPRC x 2	1	–	–	3	– 1 - 1 – 1	–	–	–	–	Option without CAN	On-chip Debug
MB96630	MB96F633A MB96F633R MB96F635A MB96F635R MB96F636R MB96F637R	32	LQFP-80	2.7 to 5.5	✓	Dual Op. Flash	64.5K +32K 128.5K +32K 256.5K +32K 384.5K +32K	10K 16K 24K 28K	–	4	15	–	64 (Single clock) 66 (Dual clock)	21(1)	–	–	7	3	6 +1 (Dedicated for LIN)	3	–	–	8bit x 20 16bit x 15	-	QPRC x 2	2	–	–	5	– 1 – 1	–	–	–	–	Option without CAN	On-chip Debug
MB96640	MB96F643A MB96F643R MB96F645A MB96F645R MB96F646R MB96F647R	32	LQFP-100	2.7 to 5.5	✓	Dual Op. Flash	64.5K +32K 128.5K +32K 256.5K +32K 384.5K +32K	10K 16K 24K 28K	–	4	16	–	81 (Single clock) 79 (Dual clock)	24(1)	–	–	7	3	6 +1 (Dedicated for LIN)	5	–	–	8bit x 24 16bit x 16	-	QPRC x 2	2	–	–	6	– 1 – 1	–	–	–	–	Option without CAN	On-chip Debug
MB96650	MB96F653A MB96F653R MB96F655A MB96F655R MB96F656R MB96F657R	32	LQFP-120	2.7 to 5.5	✓	Dual Op. Flash	64.5K +32K 128.5K +32K 256.5K +32K 384.5K +32K	10K 16K 24K 28K	-	4	16	-	101 (Single clock) 99 (Dual clock)	29(1)	-	-	7	3	6 +1 (Dedicated for LIN)	5	-	-	8bit x 32 16bit x 16	-	QPRC x 2	2	-	-	6	- 1 - 1	-	-	-	-	Option without CAN	On-chip Debug
MB96670	MB96F673A MB96F673R MB96F675A MB96F675R	32	LQFP-64	2.7 to 5.5	✓	Dual Op. Flash	64.5K +32K 128.5K +32K	4K	-	2	7	-	50 (Single clock) 48 (Dual clock)	12(1)	-	-	-	2	4	3	-	-	8bit x 8 16bit x 4	-	-	1	-	-	2	- 1 - 1	-	-	24 x 4	-	SMC x 2ch Sound generator Option without CAN	On-chip Debug
MB96680	MB96F683A MB96F683R MB96F685A MB96F685R	32	LQFP-80	2.7 to 5.5	✓	Dual Op. Flash	64.5K +32K 128.5K +32K	4K	-	2	7	-	65 (Single clock) 63 (Dual clock)	14(1)	-	-	-	2	4	3	-	-	8bit x 8 16bit x 4	-	-	1	-	-	2	- 1 - 1	-	-	32 x 4	-	SMC x 2ch Sound generator Option without CAN	On-chip Debug
MB96690	MB96F693A MB96F693R MB96F695A MB96F695R MB96F696R	32	LQFP-100	2.7 to 5.5	✓	Dual Op. Flash	64.5K +32K 128.5K +32K 256.5K +32K	8K 16K	-	4	16	-	79 (Single clock) 77 (Dual clock)	27(1)	-	-	4	2	6	5	-	-	8bit x 14 16bit x 10	-	-	1	-	-	5	- 1 - 1	-	-	36 x 4	-	SMC x 4ch Sound generator x 2ch Option without CAN	On-chip Debug
MB966A0	MB96F6A5A MB96F6A5R MB96F6A6R	32	LQFP-120	2.7 to 5.5	✓	Dual Op. Flash	128.5K +32K 256.5K +32K	8K 16K	-	4	16	-	97 (Single clock) 95 (Dual clock)	32(1)	-	-	4	2	8	5	-	-	8bit x 24 16bit x 12	-	-	1	-	-	5	- 1	-	-	44 x 4	-	SMC x 5ch Sound generator x 2ch Option without CAN	On-chip Debug
MB966B0	MB96F6B5A MB96F6B5R MB96F6B6R	32	LQFP-100	2.7 to 5.5	✓	Dual Op. Flash	128.5K +32K 256.5K +32K	8K 16K	-	4	16	-	79 (Single clock) 77 (Dual clock)	27(1)	-	-	4	2	6	5	-	-	8bit x 16 16bit x 12	-	QPRC x 2	1	-	-	5	- 1	-	-	36 x 4	-	Sound generator x 2ch Option without CAN	On-chip Debug
MB966C0	MB96F6C5A MB96F6C5R MB96F6C6R	32	LQFP-120	2.7 to 5.5	✓	Dual Op. Flash	128.5K +32K 256.5K +32K	8K 16K	-	4	16	-	99 (Single clock) 97 (Dual clock)	32(1)	-	-	4	2	8	5	-	-	8bit x 24 16bit x 12	-	QPRC x 2	1	-	-	5	- 1	-	-	44 x 4	-	Sound generator x 2ch Option without CAN	On-chip Debug

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