Infineon

Never stop thinking

XE167xM Series
Real-Time Signal Controller

THE XE167xM SERIES is a new 144-pin device family of the popular C166 microcontroller family. Based on the enhanced C166S V2 architecture, it outperforms existing 16-bit solutions. The XE167xM is an improved and next generation representation of the full featured 16-bit single-chip CMOS Real-time Signal Controller with 32-bit performance.

High CPU performance combined with enhanced IO capabilities, flexible power management and new impressive peripherals like Universal Serial Interface (USIC) make the XE167xM the instrument of choice for demanding industrial applications such as Motor Control, Power Supplies, Advanced Sensing and Communication.

Integration of external components such as integrated voltage regulator, EEPROM emulation with additional flash modules and internal clock source optimize system cost.

The XE167xM series is part of a family with 4 different PG-LQFP packages enabling high levels of system integration and scalability with a rich choice of devices.

Applications
- Servo drives
- Appliance motors
- HVAC compressors and blowers
- Stepper motors
- Industrial pumps
- Advanced sensing
- Power supplies

Main Features
- Suited for Safety applications with Memory Protection Unit (MPU), Memory checker (MCHK), Error Correction (ECC) for Flash and SRAMs
- C166 Family opcode compatible
- High performance 16-bit C166S V2 CPU with 5-stage pipeline
- Single clock cycle instruction execution with 12.5ns instruction time
- 80 MIPS peak performance @ 80MHz CPU clock
- 12.5ns multiplication (16 x 16bits), background division (32/16bits) and multiply-and-accumulate (MAC) instructions
- Fast context switching support with two additional local register banks
- 16Mbytes total linear address space for code and data

Main Features (cont'd)
- 16-priority-level interrupt system with up to 96 sources
- 8-channel interrupt-driven data transfer facilities via peripheral event controller (PEC)
- Clock Generation from Internal or external clock sources
- 2Kbytes on-chip dual-port RAM (DPRAM)
- Up to 16Kbytes on-chip data SRAM (DSRAM)
- Up to 32Kbytes on-chip program/data SRAM (PSRAM)
- Up to 576Kbytes on-chip program memory on three banks
- EEPROM Emulation
- Up to 16+8-channel dual A/D converter with optional concurrent sampling and a conversion time down to 0.675µs
- 16-channel general purpose capture/compare unit
- Up to 4 capture/compare units (CCU6) for flexible PWM signal generation for any kind of motor control
- Multi-functional general purpose timer unit with 5 timers
- Up to 8 serial interface channels to be used as UART, LIN, SPI, I²C Bus Interface, I²S Interface
- On-chip MultiCAN interface (Rev. 2.0B active) with 128 message objects, up to 6 CAN nodes and gateway functionality
- On-chip real time clock
- Programmable watchdog timer and oscillator watchdog
- Up to 118 general purpose I/O lines with flexible pin assignment
- On-chip bootstrap loaders
- Supported by a large range of development tools
- On-chip debug support via 2-wire DAP interface
- 144-pin green LQFP package, 0.5mm (19.7mil) pitch
- Temperature range: -40 to +85°C
- Embedded Voltage Regulator for single Power Supply incl. Brown-Out Detection
- Configurable I/O Power Supply for 3.3V and/or 5V
- Temperature range: -40 to +85°C
- Single Power Supply from 3.0V to 5.5V

www.infineon.com/microcontrollers

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Block Diagram
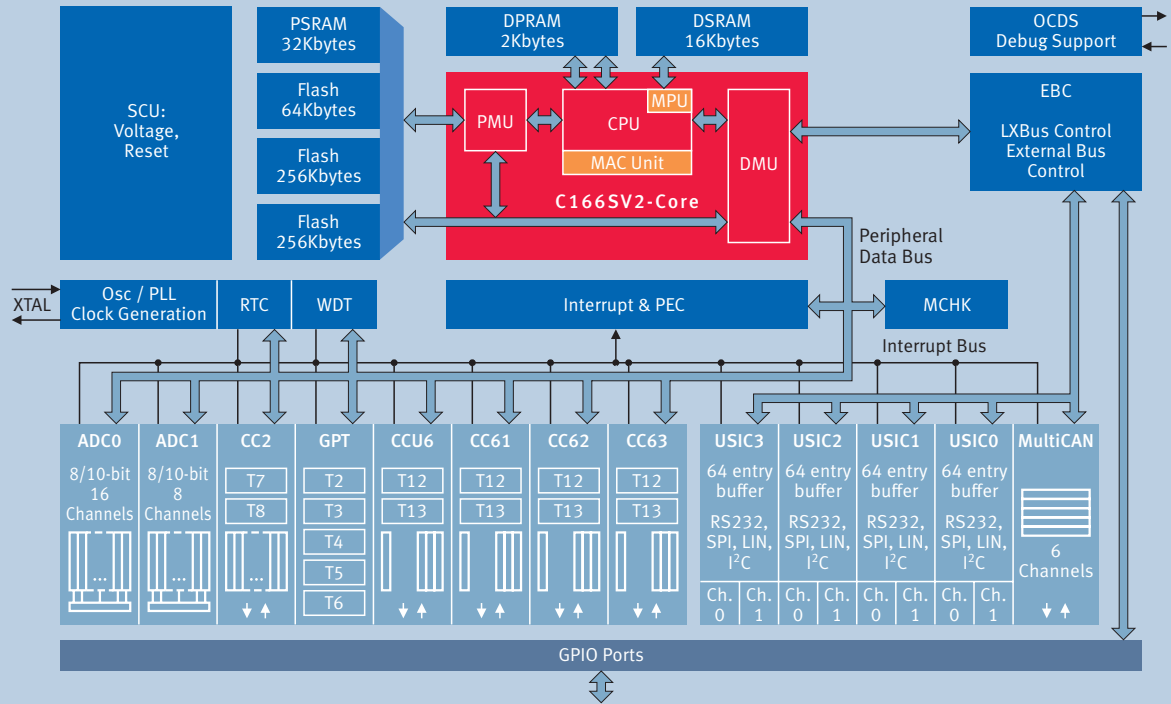
XE167xM Series

Device	Flash [KB]	RAM [KB]	MHz	ADC Channels	PWM Modules	Serial Interfaces	CAN	Package
SAF-XE167KM-48F80L	384	34	80	8 + 8	1xCC2, 2xCCU6	4	0	PG-LQFP-144
SAF-XE167KM-72F80L	576	50	80	8 + 8	1xCC2, 2xCCU6	4	0	PG-LQFP-144
SAF-XE167HM-48F80L	384	34	80	16 + 8	1xCC2, 4xCCU6	8	0	PG-LQFP-144
SAF-XE167HM-72F80L	576	50	80	16 + 8	1xCC2, 4xCCU6	8	0	PG-LQFP-144
SAF-XE167GM-48F80L	384	34	80	8 + 8	1xCC2, 2xCCU6	4	2	PG-LQFP-144
SAF-XE167GM-72F80L	576	50	80	8 + 8	1xCC2, 2xCCU6	4	2	PG-LQFP-144
SAF-XE167FM-48F80L	384	34	80	16 + 8	1xCC2, 4xCCU6	8	6	PG-LQFP-144
SAF-XE167FM-72F80L	576	50	80	16 + 8	1xCC2, 4xCCU6	8	6	PG-LQFP-144

Information For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (www.infineon.com).

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