



HPM6200 Series MCU

Dual Core High Performance

Crafted for Precise Control

The HPM6200 series MCU is a high-performance, real-time, mixed-signal microcontroller family for digital power and high-performance motor control in industrial and automotive applications.

Performance:

- Floating-point RISC-V dual-core supports dual-precision and powerful DSP extensions, with a frequency up to 600MHz and performance exceeding 6780coremark/m and 3420dmips.
- 32KB High-speed Cache (I/D Cache), up to 512KB of zero-wait instruction in dual-core configuration and data local memory (ILM / DLM), together with 256KB general purpose SRAM, greatly mitigate performance losses caused by slow external memory.

Enhanced PWM control system:

- Four groups of 8-channel enhanced PWM controllers, of which two groups of PWM modulation accuracy as high as 100PS.
- Two programmable logic arrays (PLA) can flexibly construct the unique combinational logic / timing, circuit, enrich the system function, improve the flexibility and robustness.

External storage:

- One serial bus controller is available, supporting NOR Flash/HyperFlash and also supporting online encryption execution for NOR Flash, providing highly scalable and compatible program space.

Rich peripherals:

- A variety of communication interfaces: A high-speed USB built-inPhy, up to 4 CAN/CAN-FD, 4 Lin and rich UART, SPI, I2C peripherals.
- The $\Sigma\Delta$ digital filter SDM, including the SINC, can be connected externally to The $\Sigma\Delta$ digital filter modulator.
- Three 2MSPS 16-bit high-precision adcs, configured for 12-bit precision conversion up to 4MSPS, up to 24 analog input channels; four analog comparators and two 1MSPS 12-bit dacs.
- Up to 20 32-bit timers, 5 watchdog and 1 RTC.

Power supply:

- Integrated with high efficiency DC-DC converter and LDO, the system can be powered by a single power supply, and the output voltage can be dynamically adjusted to achieve performance-power balance.
- Multi-power domain design, flexible support for a variety of low-power modes.
- Ultra low power standby.

Safe:

- Integrated AES128/256, SM4, SHA1/256, SM3, acceleration engine and hardware key manager. Supports firmware signature authentication, encryption startup and encryption execution to prevent illegal code substitution, tampering or copying.
- The security management based on chip life cycle and the detection of many kinds of attacks further protect sensitive information.
- Built-in Boot ROM allows secure firmware downloading and upgrading via USB or UART.

Power supply DCDC LDOPMC LDOOTP LDOBAT POR/BOR	Core RISC-V CPU 0 32KB L1-I 32KB L1-D FPU DSP PLIC 128KB ILM 128KB DLM RISC-V CPU 1 32KB L1-I 32KB L1-D FPU DSP PLIC 128KB ILM 128KB DLM	Communication UART x9 SPI x4 I2C x4 LIN x4 CAN FD x4 USB HS W/PHY
Clock Fractional PLL X 3 OSC 24M IRC 24M OSC 32K IRC 32K	System DMAx2 WDG x5 MBX mailbox RTC JTAG debugging CRC	Control System 100ps PWM 8ch x2 2.5ns PWM 8ch x2 Programmable logic array PLA X2 $\Sigma\Delta$ digital filter SDM Orthogonal encoder interface x4 Hall effect sensor interface x4 Synchronization Timer Trigger Interconnect X4
Internal memory High speed RAM 256KB Peripheral Ram 32KB ROM 128KB OTP 4Kb	Analog 16b ADC 2Msps x3 Analog Comparator X4 Temperature sensor 12b DAC x2	Security EXIP online decryption execution AES/SM4/SHA/SM3 Safety debugging TRNG Key management Product life cycle management Security enabled, encrypted/trusted
External memory 21/2000 4B/8b serial NOR FLASHx1	Timer 32-bit Universal Timer X 5	
	Input and output GPIO Quick Gpio	

HPM6200 series

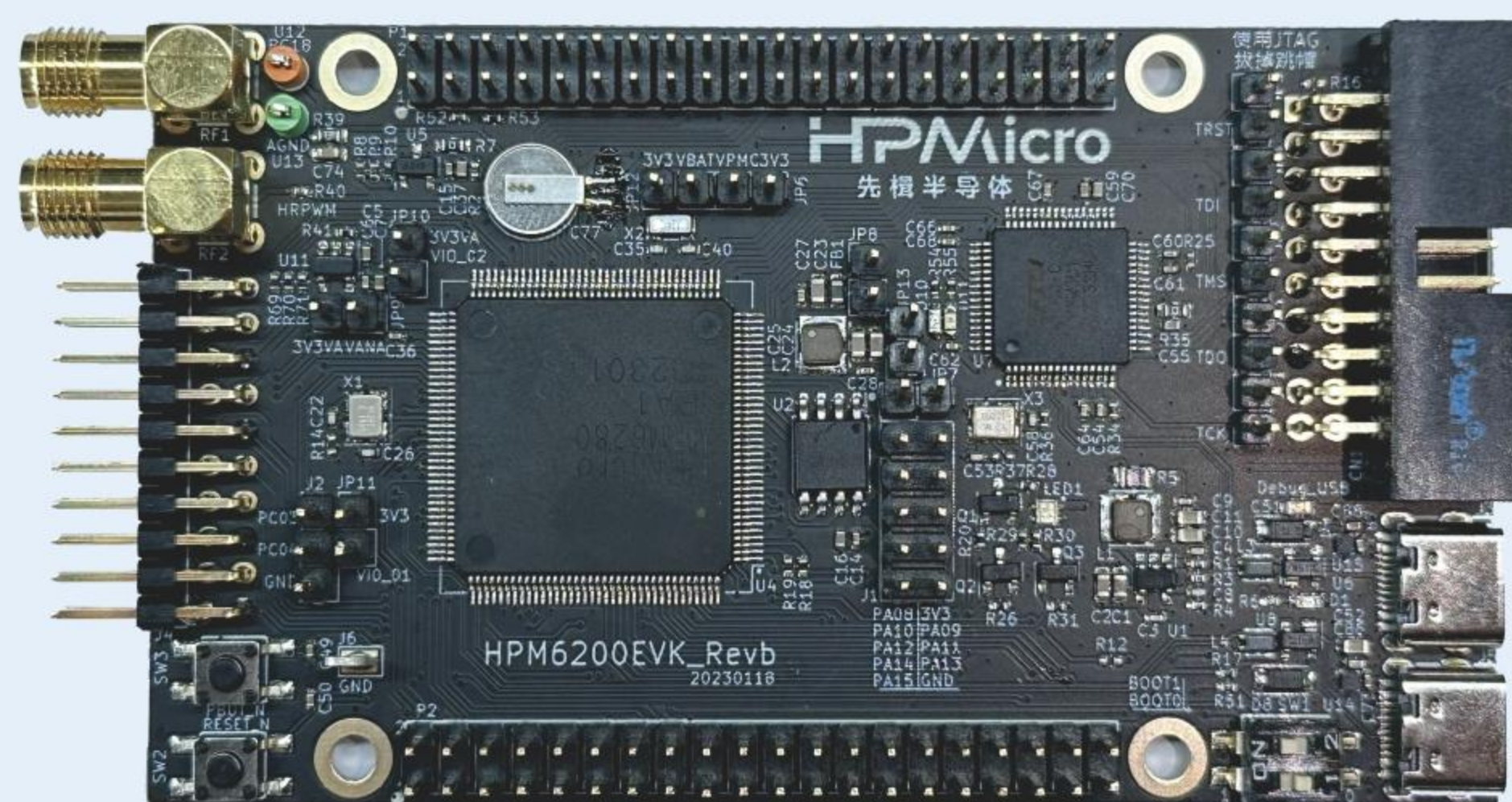
32-bit high performance RISC-V microcontroller

Product Model	HPM6280	HPM6260	HPM6240	HPM6284	HPM6264	HPM6220
CPU Core	600MHz	600MHz	600MHz	600MHz	600MHz	300MHz
CPU Core2	600MHz	/	/	600MHz	/	/
On-Chip Memory	800 KB SRAM					
On-Chip Flash	/			4 MB		/
Security Encryption	On-the-fly decryption execution, AES128/256, SHA-1/256, TRNG, JTAG secure boot					
USB	1 high-speed USB with built-in high-speed PHYMotor Control					
CAN	4× CAN FD	4× CAN FD	4× CAN FD	4× CAN FD	4× CAN FD	/
UART/SPI/I2C	9× / 4× / 4×					6× / 3× / 3×
HR PWM	2×8CH 100ps		/	2×8CH 100ps		
PWM	2×8CH 2.5ns		4×8CH 2.5ns		2×8CH 2.5ns	
Motor control	4× Quadrature Encoder Interface (QEI) 4× Hall Sensor Interface					/
Analog	3×16b/2Msps (12b/4Msps) ADC, 4×ACMP, 2×12b DAC					1×ADC, 2×ACMP
Package	20×20 144 eLQFP P0.5, 7×7 116 BGA P0.5					
Temperature range	-40 ~ 125°C Tj / -40 ~ 105°C Ta					

Software and ecosystem:

HPMicro Semiconductor provides an SDK based on the BSDlicense, which includes drivers, middleware, and RTOS. It also includes the self-developed library "hpm_mcl" for DC brushless motor control and integrates mature community projects such as littlevgl/lwlp/CherryUSB/TinyUSB/FreeRTOS and active open-source projects such as RT-Thread/Zephyr/Nuttx/Threadx/ROS. HPMicro Semiconductor collaborates with tools vendors such as Segger and IAR to facilitate quick adoption for users with different preferences. Users can use Segger Embedded Studio for RISC-V, an IDE for commercial development, free of charge. Additionally, HPMicro Semiconductor provides a desktop SoC resource configuration tool.

Development Kit:



	HPM6200EVK
Memory	128Mbit NOR Flash
Analog	SMA ADC Input interface SMA high resolution PWM test interface
Connection	USB Type-C interface Motor Control Interface Two 20pin expansion interface
Debugging	An onboard JTAG and serial debugger

WeChat official account



To order, please email
info@hpmicro.com



For more information
<https://www.hpmicro.com>