

8-bit and 32-bit microcontrollers

USB Stack with PHDC Support

Overview

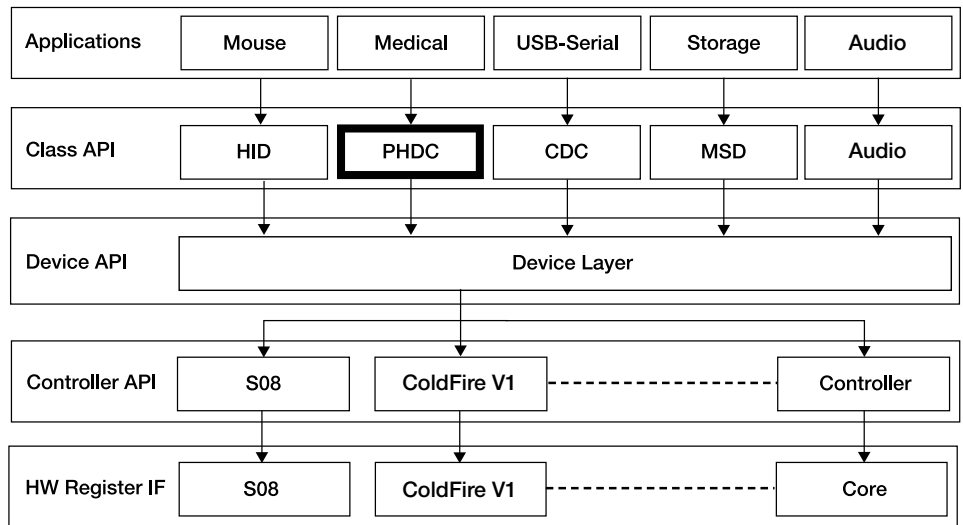
Freescal's general purpose USB stack with personal health care device class (PHDC) support currently offers device and host functionality for a wide number of Freescal microcontrollers. This stack is also provided with complete source code, sample applications, a fully featured user guide and a reference manual to accelerate the development process. The stack currently supports USB.org standard USB classes such as human interface device (HID), mass storage device (MSD), communications device class (CDC), audio and PHDC. The stack is provided free of charge while using supported Freescal products.

USB PHDC enables USB connectivity among medical devices. The stack is also compatible with the Freescal Medical Connectivity Library, which provides IEEE® 11073 support and is available for the USB transport layer. The stack was also designed to support the Continua Health Alliance (an organization which defines standards for medical device connectivity) guidelines, so the software is ready for certification.

Target Applications

- General purpose USB device or host applications
- Medical devices with USB connectivity
- Serial-to-USB converters
- PC peripherals
- USB pen drives
- Data loggers

USB Stack with PHDC Support



Freescal Technology

Applicable USB MCUs and MPUs	
Part Number	Key Features
9S08JS	<ul style="list-style-type: none"> Up to 16 KB flash and 512B SRAM 1 x SCI, 1 x SPI Note: Supports only 9S08JS16
9S08JM	<ul style="list-style-type: none"> Up to 60 KB flash and 4 KB SRAM Up to 2 x SCI, 2 x SPI, I²C, ACMP, ADC
9S08JE	<ul style="list-style-type: none"> Up to 128 KB flash and 12 KB SRAM ADC, PDB, PRACMP, VREF, 2 x SPI, 2 x SCI, 1 x I²C
9S08MM	<ul style="list-style-type: none"> Up to 128 KB flash and 12 KB SRAM 16-bit ADC, 12-bit DAC, 2 x OPAMP, 2 x TRIAMP PDB, PRACMP, VREF, 2 x SPI, 2 x SCI, 1 x I²C
MCF51JM	<ul style="list-style-type: none"> Up to 128 KB flash and 16 KB SRAM 2 x SCI, 2 x SPI, 2 x I²C, CAN, Crypto
MCF51JE	<ul style="list-style-type: none"> Up to 256 KB flash and 32 KB SRAM 12-bit ADC, 12-bit DAC PDB, PRACMP, VREF, 2 x SPI, 2 x SCI, 1 x I²C Mini-FlexBus external bus interface
MCF51MM	<ul style="list-style-type: none"> Up to 256 KB flash and 32 KB SRAM 16-bit ADC, 12-bit DAC, 2 x OPAMP, 2 x TRIAMP PDB, PRACMP, VREF, 2 x SPI, 2 x SCI, 1 x I²C Mini-FlexBus external bus interface
MCF5225X	<ul style="list-style-type: none"> Up to 512 KB flash and 64 KB SRAM Ethernet, CAN, Cryptographic functions 3 x UART, 1 x I²C, QSPI Mini-FlexBus external bus interface
MCF5221X	<ul style="list-style-type: none"> Up to 128 KB flash and 16 KB SRAM Up to 3 x UART and 3 x SCI 2 x I²C and 1 x QSPI
MCF5227X	<ul style="list-style-type: none"> 8 KB configurable I/D cache 128 KB of SRAM Integrated LCD controller with touch screen capability 3 x UARTS, I²C, SSI, CAN

Features	Benefits
MQX RTOS compatible	Easily migrate your USB application from bare metal to the Freescale MQX™ RTOS complimentary operating system
Medical Connectivity Library compatible	Easily implement your medical device USB specialization layer, reducing time to market
Compliant with Continua Health Alliance USB standard	First step in obtaining Continua certification Freescale USB devices are compatible with USB organization standards Reduces time to market when developing USB connectivity solutions within medical applications Multi-vendor product compatibility
CPU core independent software architecture	Multiple Freescale entry-level USB solutions to select from
Small memory footprint (16 KB flash, 512B SRAM)	Small memory footprint allows development of both USB and application code on the same microcontroller
Code examples, documentation and demos available	Speed time to market by taking advantage of existing application-specific building blocks
Complimentary with Freescale products	Projects finish on time and within budget

Stack Layer	Component	Description
1 Specialization layer	Reference agent application	General purpose or medical application
2	Service layer	Generic Agent + manager commands
3	Association layer	Agent module Manager module
4	Transport independent layer	Layer above the various transport layers
5	Transport shim	Map transport to upper layer
6 USB.org personal health care device class (PHDC)	USB PHDC device driver	Device-side USB PHDC class implementation
7	LPCUSB low level driver	Low level driver

Development Tools

DEMOJM \$99

Supports 9S08JM60/128 and MCF51JM128

DEMO9S08JS16 \$79

Supports 9S08JS16

TWR-S08MM128 \$59

Supports 9S08MM128

TWR-MCF51MM \$59

Supports MCF51MM256

TWR-S08JE128 \$69

Supports 9S08JE128

TWR-MCF51JE \$69

Supports MCF51JE256

TWR-MCF5225X \$49

Supports MCF5225X

M52210DEMO \$99

Supports MCF52210

M52211EVB \$299

Supports MCF5221X

M52277EVB \$499

Supports MCF52277

The following compilers are supported by USB stack with PHDC release 2.6:

- Freescale CodeWarrior 6.3 for S08 and ColdFire V1 targets
- Freescale CodeWarrior 7.2 for ColdFire V2 targets
- Freescale CodeWarrior 10 MCU for S08, ColdFire V1 and ColdFire V2 targets

* New projects should be developed under CodeWarrior 10.

Learn More:

For current information about Freescale products and documentation, please visit freescale.com/USB.