#### FRDM-MC36XSD-EVB Demo

The NXP <u>MC36XSD</u> is part of a family of intelligent, dual high side eXtreme switches for 36V systems. The FRDM-MC36XSD-EVB circuit board consists of two MC36XSD family chips: MC06XSD200. Each chip supports two high side switches. This demo uses <u>FRDM-KL25Z</u> as development platform to control these switches and measure channels current.

### **1** Install Driver

Locate the 'driver' folder, install the P&E OpenSDA USB Drivers.



Plug in a USB cable from a USB host to the OpenSDA mini-B connector.



FRDM-KL25Z comes with the mass-storage device(MSD) Flash Programmer OpenSDA Application preinstalled. It will appear as a removable storage drive with a volume label of 'FRDM-KL25Z', meanwhile the USB CDC Serial Port will be installed automatically.



# **2 Update OpenSDA Application**

### 2.1 Enter OpenSDA Bootloader Mode

Unplug the USB cable if attached, press and hold the Reset button(SW1), plug in a USB cable between a USB host and the OpenSDA USB connector, release the Reset button.

A removable drive should appear in the host file system with a volume label of 'BOOTLOADER'.



## 2.2 Load an OpenSDA Application

Locate the 'OpenSDA Applications' folder, copy file 'DEBUG-APP\_Pemicro\_v102.SDA' to the 'BOOTLOADER' drive, unplug the USB cable and plug it in again.

Driver will be installed automatically. After finishing installation, 'PEMicro OpenSDA Debug Driver' will appear in the Device manager.



# **3** Download program image

Locate the 'code' folder, find 'FRDM\_KL25Z\_MC06XSD200'  $\mu$ Vision project( $\mu$ Vison 5.15 or later version), double-click to open it.

	<b>.project</b> PROJECT 文件 5.34 KB	FRDM_KL25Z_MC06XSD200.ma p MAP 文件
V	FRDM_KL25Z_MC06XSD200 礦ision5 Project 29.0 KB	MC06_SPI.c C 文件 7.64 KB
	pemicro_connection_settings 配置设置 1.39 KB	ProcessorExpert.pe PE 文件 421 KB

Download.

File	Edit	: V	/iew	Proj	ect	Flas	h	Debug	Perip	herals	Too	ols	SVCS	Wi	indov	w H	Help
	2	Я	ø	*	Ee	LOAD	D	ownload		F8	-	P	4 R		*	=	$  _{\mathbb{R}}^{z}$
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Project: FRDM_KL25Z_MC06XSD200									_								
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🕀 🛄 GeneratedCs																	

click 'Connect(Reset)' button to go on.

BDM Communication Speed	
PC Parallel Port wait states : IO_DELAY_CNT = 0	
ebug Shift Speed = (0) : Shift Frequency = 10.000Mhz	•
BDM_SPEED = 0	
Use SWD reduced pin protocol for communications	
MCU Internal Bus Frequency (For programming)	
C Auto-Detect	
C MCU Internal Bus frequency (FREQ) in Hz = 0	(Decimal)
Reset Options	
Delay after Reset and before communicating to target for	0 milliseconds (decimal).
,	
Power Control for Cuclone / Tracel ink / Multilink Universal EX	
Provide power to target Regulator Output Voltage	Power Down Delay 250 mS
Power off target upon software exit	Power Up Delay 250 mS
	Abort

If you want to download directly without displaying this dialog, deselect 'Show this dialog before attempting to contact target(Otherwise only display on Error)' at the bottom of dialog.

download successfully.

Build Output					
Load "E:\\v	vorkspace				
Flash Load	finished				

## 4 run program

Connect FRDM-KL25Z and FRDM-MC36XSD-EVB.





#### 4.1 Setup virtual COM port

After download, reset FRDM-KL25Z. Open a serial terminal emulation program(example for PuTTY), set parameter as shown below(Note that the COM port number varies from one host PC to the next, find the correct COM port in Device Manager), then click 'open'.

tegory:		
- Session	Options controlling	local serial lines
Logging Terminal Keyboard Bell Features	Select a serial line Serial line to connect to Configure the serial line	COM6
- Appearance	Data bite	8
Behaviour Translation Selection Colours Connection Oata	Stop bits	1
	Flow control	None
← Proxy ← Telnet ← Rlogin ⊕ SSH		

#### **4.2 Print information**

Channel\_0 ~ Channel\_3 on the board FRDM-MC36XSD-EVB.

1000		
1945) 1945) 1945) 1945		channel_0
88 88 88 88	0000000	FRDM-MC36XSD-EVB REV A GND
0000		channel_3
0000		VPWR VPWR GND GND

Channel\_0 ~ Channel\_3 will be turned on and turned off one by one continuously, the serial terminal will display load current value of respective channel.



Print current value.

子 COM6 - PuTTY	-
ADC 16bit = 2057	
ADC Volt = 103 mV	
Channel_1 Current = 85 mA	
$ADC_{16bit} = 2080$	
Channel_2 Current = 86 mA	
ADC_16bit = 2173	
ADC Volt = 109 mV	
Channel_3 Current = 90 mA	
ADC_16bit = 2084	
ADC Volt = 104 mV	
Channel_0 Current = 86 mA	