



XILINX

ALL PROGRAMMABLE™

VC709 Power Bus Reprogramming

Contents

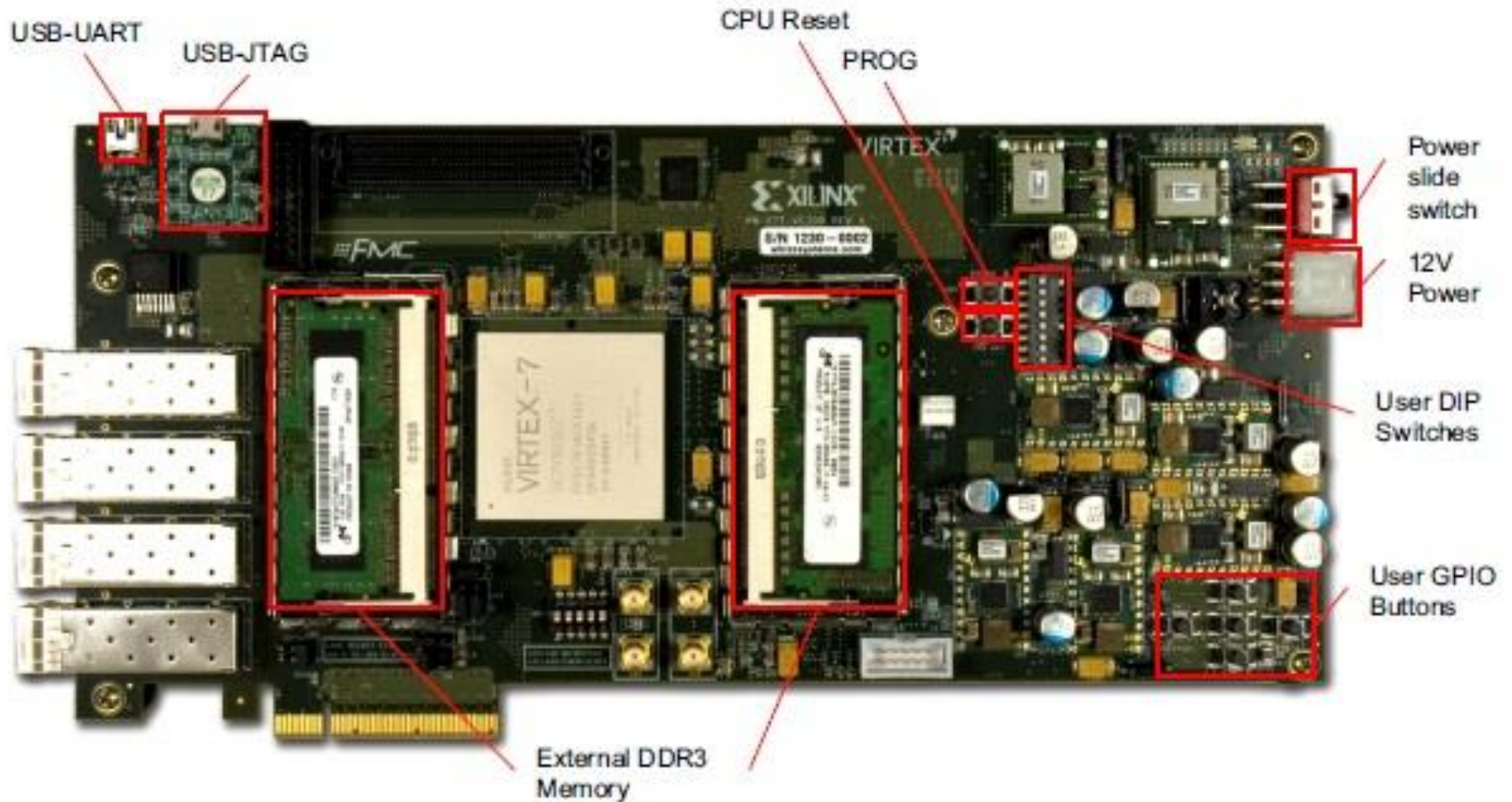
- **Caution!**
- **Xilinx VC709 Board**
- **Hardware & Software Requirements**
- **Setup**
- **TI Fusion Digital Power Manufacturing Tool Tutorial**

Caution!

- The Texas Instruments software used in this presentation can adjust the power supply outputs on the VC709
- If used improperly, it can seriously damage your VC709
- Before making any adjustments not specifically covered in this presentation:
 - Understand the power requirements for Virtex-7 Devices
 - Understand the consequences of the change you are making



Xilinx VC709 Board



Hardware Requirements

➤ Texas Instruments USB Interface Adapter EVM

– TI Part Number: [USB-TO-GPIO](#)



Software Requirements

➤ Texas Instruments Power Software

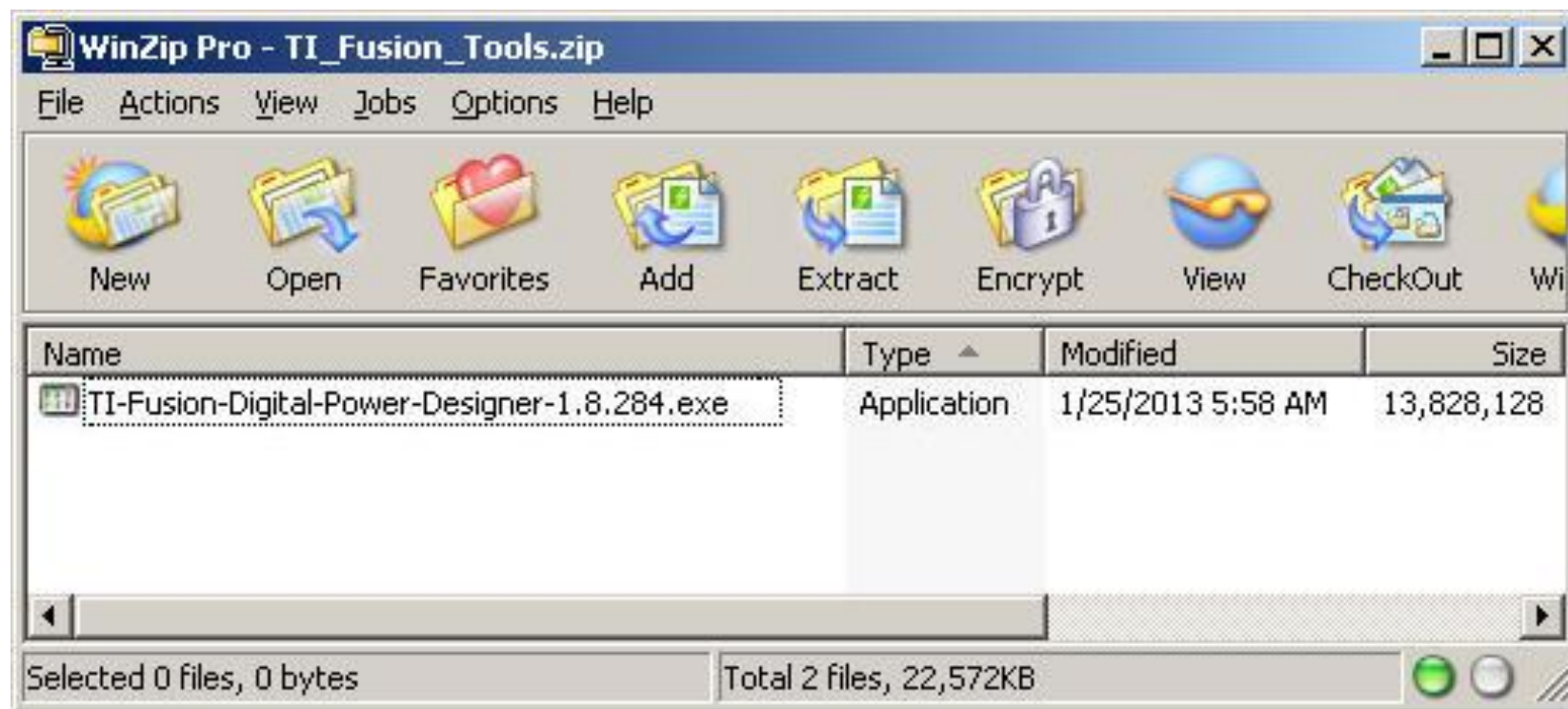
- TI Part Number: FUSION_DIGITAL_POWER_DESIGNER
- Download Latest Release at http://www.ti.com/tool/fusion_digital_power_designer



Note: Splash screen included for reference – may not be latest version of TI Digital Power Designer GUI

Software Setup

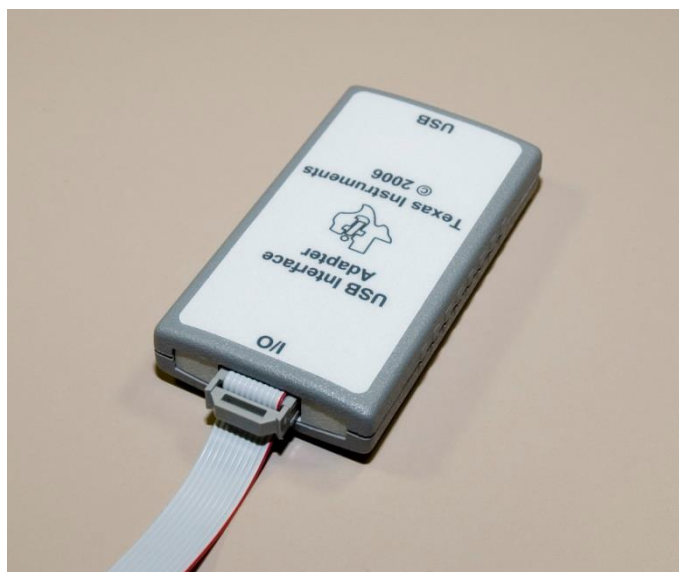
➤ Install the TI Fusion Digital Power Designer Software



Connect TI USB Interface Adapter

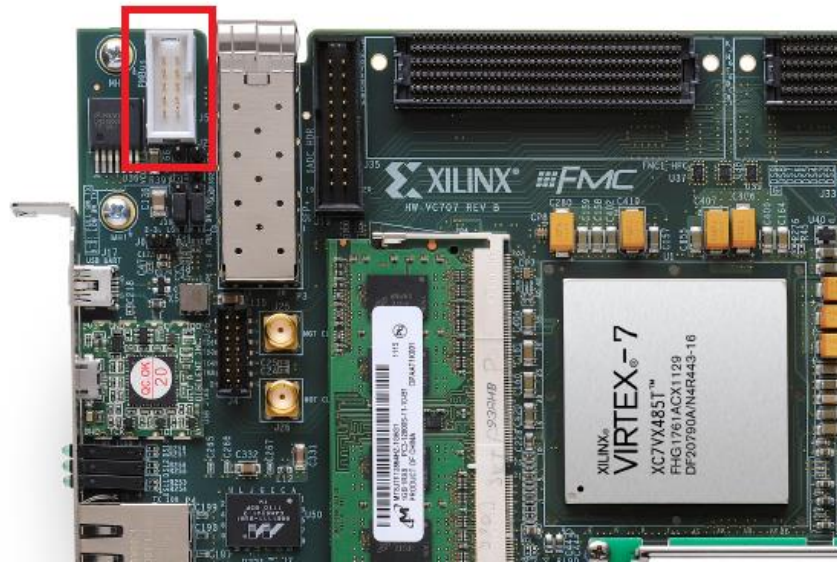
➤ On the TI USB Adapter

- Connect the Ribbon Cable
- Connect the USB Cable



Connect TI USB Interface Adapter (2)

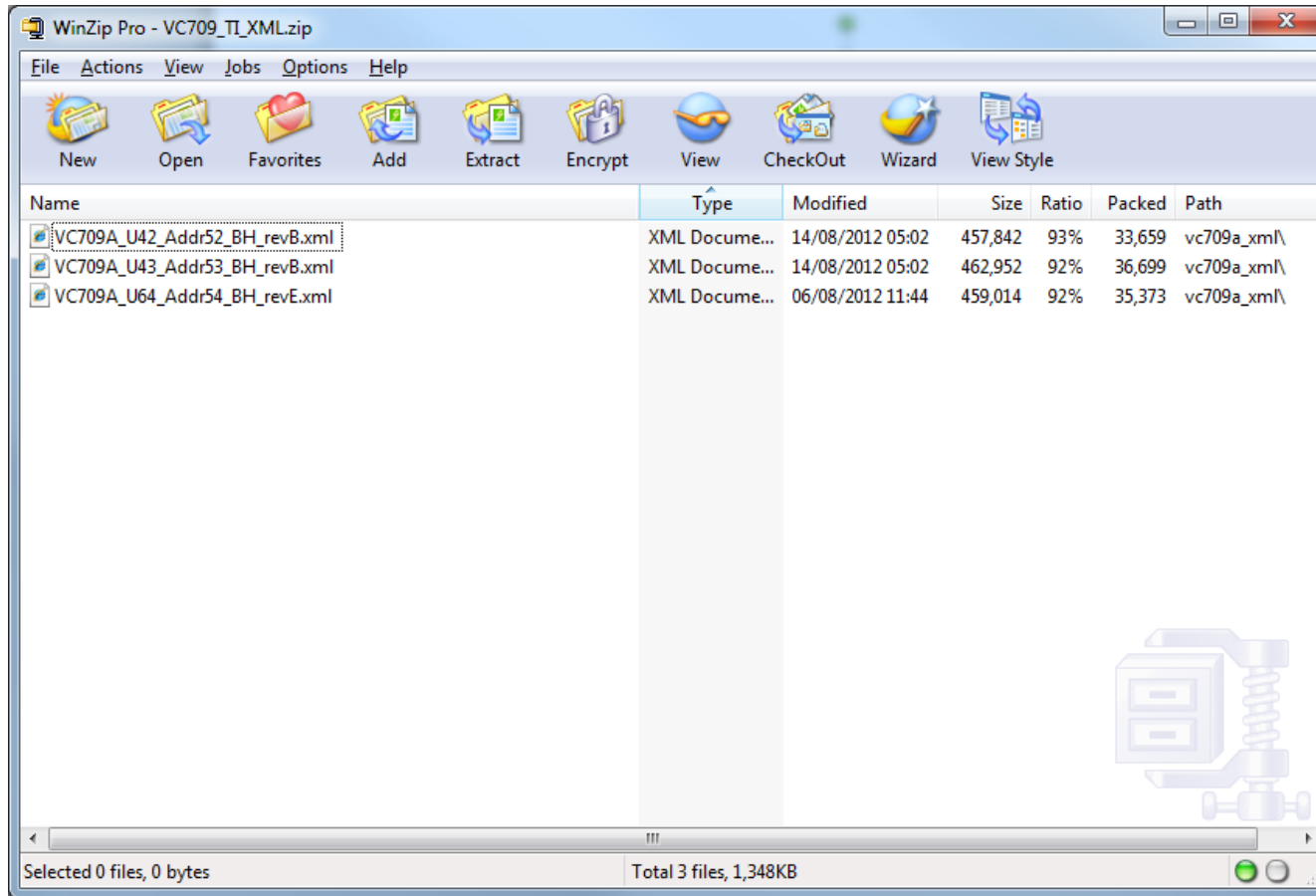
- Connect the USB cable to your PC
- Connect the Ribbon Cable to the VC709
 - Red Stripe towards pin 1



- Insert the “A” end of the USB cable into a PC USB port (do not use a docking station or USB hub port)
- Turn on the VC709 board

Restoring Power Levels

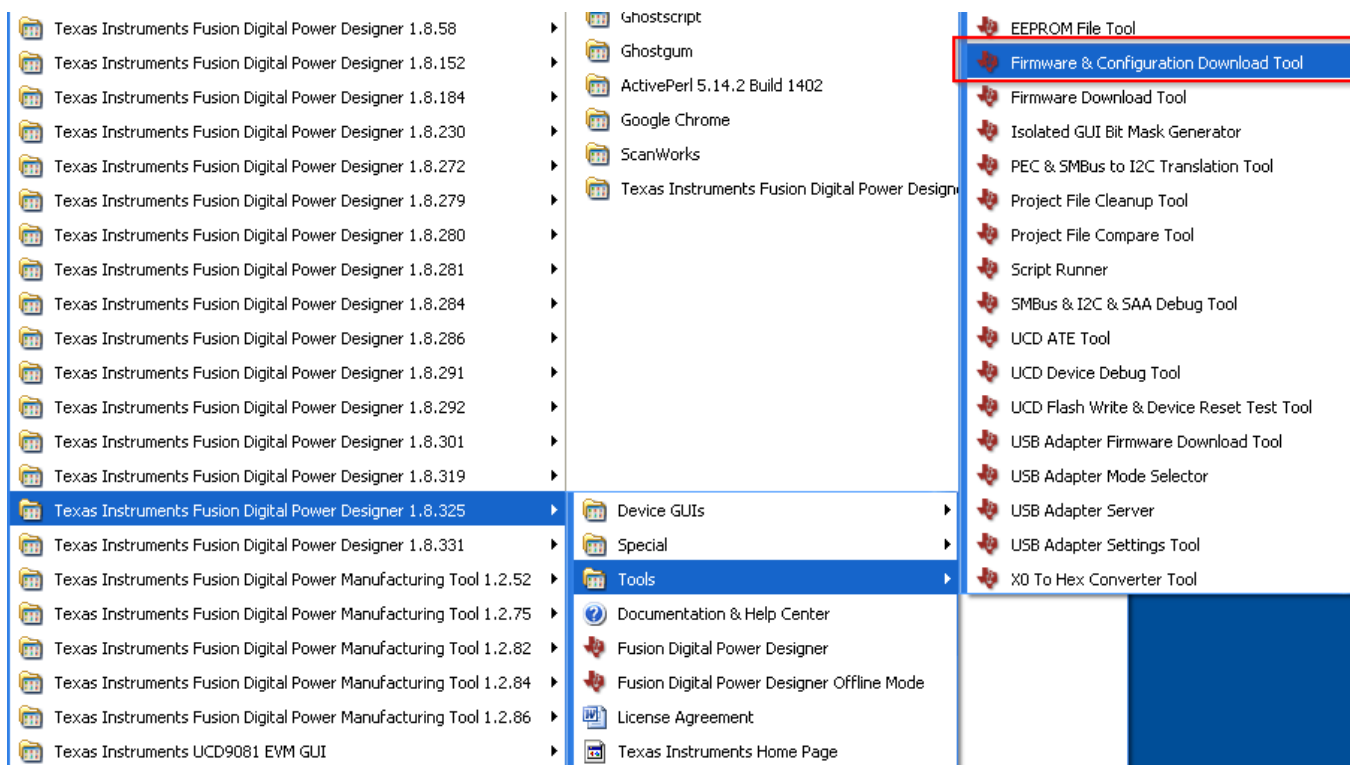
➤ Unzip included file: VC709_TI_XML.zip



TI Fusion Digital Power Designer Tool

➤ Power up the VC709

➤ Go to Texas Instruments Fusion Digital Power Designer > Tools > Firmware & Configuration Download Tool:



TI Fusion Digital Power Firmware & Configuration Download Tool

- **When the Fusion Digital Power Firmware & Configuration Download Tool window opens the following fields need to be completed:**
 - IC Family: UCD3xxx / UCD92xx / UCD90xx
 - Project File Write Options (Used for All Devices):
 - Ignore write read back mismatch warnings (NACKs will still abort programming)
 - Force write of all parameters (normally only differences are written)
 - Address of controller you wish to write to
 - Project File (radio button)
 - Navigate to the location of .xml configuration file for this controller and select
- **Once configuration section is complete, click Start**
- **Up to 4 devices can be written from one instance**

- **See next slide for GUI representation**

TI Fusion Digital Power Firmware & Configuration Download Tool

Firmware File (Used For All Devices)
Firmware File:

IC Family
 UCD3xxx / UCD92xx / UCD90xxx
 UCD91xx

Project File Write Options (Used for All Devices)
 Ignore write read back mismatch warnings (NACKs will still abort programming) Do not write OPERATION command
 Verbose project download: list each parameter that is written Force write of all parameters (normally only differences are written)
 Reset device after configuration is downloaded

Devices to Program

Firmware Download:		Configuration Download Mode:				Configuration File:	
Addr: 1	<input type="checkbox"/> Download	Addr: 1	<input type="radio"/> Skip	<input checked="" type="radio"/> Project File	<input type="radio"/> Data Flash File	<input type="radio"/> Erase	<input type="text"/> <input type="button" value="Select File ..."/>
Addr: 1	<input type="checkbox"/> Download	Addr: 1	<input checked="" type="radio"/> Skip	<input type="radio"/> Project File	<input type="radio"/> Data Flash File	<input type="radio"/> Erase	<input type="text"/> <input type="button" value="Select File ..."/>
Addr: 1	<input type="checkbox"/> Download	Addr: 1	<input checked="" type="radio"/> Skip	<input type="radio"/> Project File	<input type="radio"/> Data Flash File	<input type="radio"/> Erase	<input type="text"/> <input type="button" value="Select File ..."/>
Addr: 1	<input type="checkbox"/> Download	Addr: 1	<input checked="" type="radio"/> Skip	<input type="radio"/> Project File	<input type="radio"/> Data Flash File	<input type="radio"/> Erase	<input type="text"/> <input type="button" value="Select File ..."/>

Enter PMBus addresses of devices above. There are separate entries for firmware download address and configuration file download address should the download of firmware cause the device's address to change due to firmware address calculation algorithm changes. Click the Start button to perform all checked activities.

Timestamp	Message
16:41:34.563	USB Adapter v1.0.11 [PEC; 100 kHz; Alert: Open Drain; Clock: Open Drain; Data: Open Drain] Found (Adapter #1)

Fusion Digital Power Designer v1.8.325 [2013-05-07] | USB Adapter v1.0.11 [PEC; 100 kHz; Alert: Open Drain; Clock: Open Drain; Data: Open Drain] | TEXAS INSTRUMENTS | fusion digital power

TI Fusion Digital Power Firmware & Configuration Download Tool - Example

➤ VC709 U42
➤ Addr52

Fusion Digital Power Firmware & Configuration Download Tool

Firmware File (Used For All Devices)
Firmware File:

IC Family
 UCD3xxx / UCD92xx / UCD90xxx
 UCD91xx

Project File Write Options (Used for All Devices)
 Ignore write read back mismatch warnings (NACKs will still abort programming) Do not write OPERATION command
 Verbose project download: list each parameter that is written Force write of all parameters (normally only differences are written)
 Reset device after configuration is downloaded

Devices to Program

Firmware Download:	Configuration Download Mode:	Configuration File:
Addr: <input type="text" value="1"/> <input type="checkbox"/> Download	Addr: <input type="text" value="52"/> <input type="radio"/> Skip <input checked="" type="radio"/> Project File <input type="radio"/> Data Flash File <input type="radio"/> Erase	<input type="text" value="VC709A_U42_Addr52_BH_revB.xml"/> <input type="button" value="Select File ..."/>
Addr: <input type="text" value="1"/> <input type="checkbox"/> Download	Addr: <input type="text" value="1"/> <input checked="" type="radio"/> Skip <input type="radio"/> Project File <input type="radio"/> Data Flash File <input type="radio"/> Erase	<input type="text"/> <input type="button" value="Select File ..."/>
Addr: <input type="text" value="1"/> <input type="checkbox"/> Download	Addr: <input type="text" value="1"/> <input checked="" type="radio"/> Skip <input type="radio"/> Project File <input type="radio"/> Data Flash File <input type="radio"/> Erase	<input type="text"/> <input type="button" value="Select File ..."/>
Addr: <input type="text" value="1"/> <input type="checkbox"/> Download	Addr: <input type="text" value="1"/> <input checked="" type="radio"/> Skip <input type="radio"/> Project File <input type="radio"/> Data Flash File <input type="radio"/> Erase	<input type="text"/> <input type="button" value="Select File ..."/>

Enter PMBus addresses of devices above. There are separate entries for firmware download address and configuration file download address should the download of firmware cause the device's address to change due to firmware address calculation algorithm changes. Click the Start button to perform all checked activities.

Timestamp	Message
16:41:34.563	USB Adapter v1.0.11 [PEC; 100 kHz; Alert: Open Drain; Clock: Open Drain; Data: Open Drain] Found (Adapter #1)

Fusion Digital Power Designer v1.8.325 [2013-05-07] | USB Adapter v1.0.11 [PEC; 100 kHz; Alert: Open Drain; Clock: Open Drain; Data: Open Drain] | TEXAS INSTRUMENTS | fusion digital power