

# Quick Start Guide

## FMC Series Reference Design

4DSPs FMC series products can be evaluated on Xilinx' Spartan-6 and Xilinx' Virtex-6 development boards.

4DSP FMC product	SP601 (Spartan-6)	SP605 (Spartan-6)	ML605 (Virtex-6)
FMC108 (HPC)	X	X	V
FMC107 (LPC)	V <sup>1</sup>	V <sup>1</sup>	V
FMC104 (LPC)	V <sup>1</sup>	V <sup>1</sup>	V
FMC103 (LPC)	V <sup>1</sup>	V <sup>1</sup>	V
FMC110 (HPC)	X	X	V
FMC204 (HPC)	X	X	V
FMC122 (LPC)	V <sup>1</sup>	V <sup>1</sup>	V
FMC125 (HPC)	X	X	V
FMC126 (HPC)	X	X	V
FMC150 (LPC)	V	V	V

Table 1: Compliancy matrix

<sup>1</sup> Reference firmware not yet released. Please contact 4DSP for more information

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## 1 Quick Start Guide

- 1) Download the “FMC Board Support Package” installer from:  
[http://www.4dsp.com/BSP/FMC/FMC\\_Board\\_Support\\_Package.exe](http://www.4dsp.com/BSP/FMC/FMC_Board_Support_Package.exe)
- 2) Install the “FMC Board Support Package” installer. Either reboot the machine when prompted by the installer or reboot manually after installation.
- 3) Make sure the development board (either SP601 or ML605) is powered down.
- 4) In case of ML605, make sure the PHY jumper setting on the development board selects GMII/MII interface mode. This is the factory default jumper setting.
- 5) Plug the FMC card on the development board. Use the LPC connector on the ML605 (J63) for LPC boards or use the HPC connector on the ML605 (J64) for HPC boards.

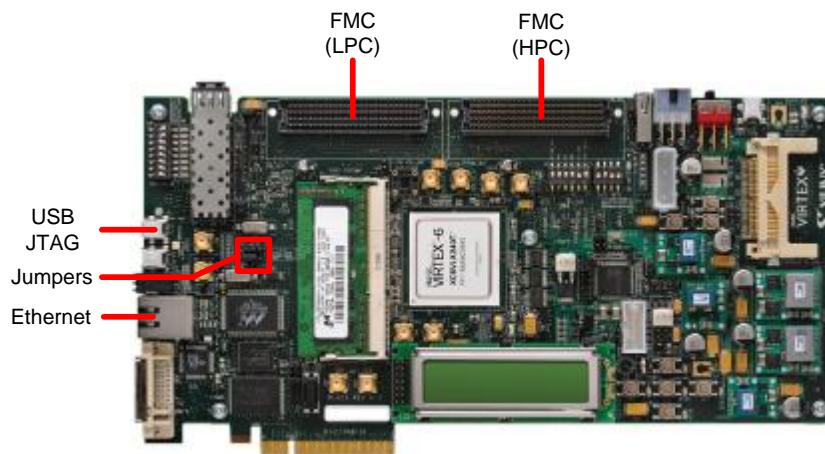


Figure 1: ML605 development board

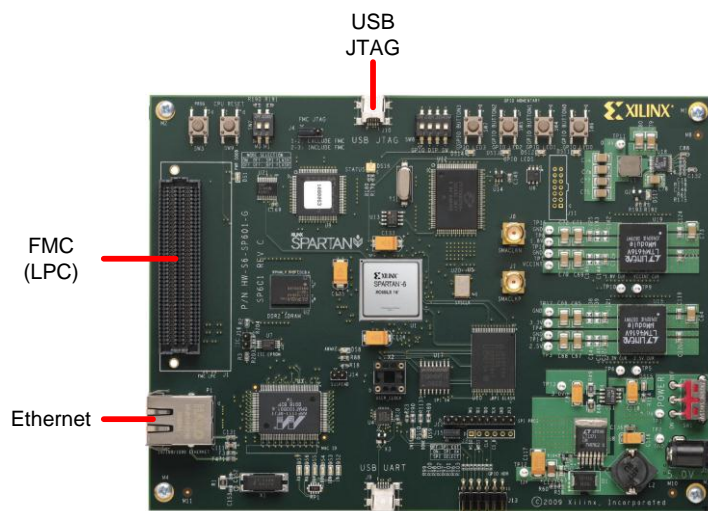


Figure 2: SP601 development board

- 6) Connect the USB cable that comes with the development board to the USB JTAG connection on the development board. Connect the other end of the cable to your computer/laptop.

- 7) Connect the Ethernet cable that comes with the development board to the Ethernet connection on the development board. Connect the other end of the cable to your computer/laptop (direct connection without Ethernet switch/hub).
- 8) Power up the development board.



**Make sure there is proper air flow across the FMC card when power is supplied to the board. A minimum airflow of 300 LFM is recommended. 4DSP's warranty does not cover boards on which the maximum allowed temperature has been exceeded.**

- 9) Load the reference firmware from "C:\Program Files\4DSP\FMC Board Support Package\Refs\Firmware\Recovery". Xilinx Impact can be used to directly load the .bit files to the FPGA using Boundary Scan. Choose the bit file that reflects your development board and FMC card, for example:
  - a. "ml605\_fmc110.bit" needs to be used for evaluation of the FMC110 on a ML605 development board.
  - b. "sp601\_fmc104.bit" needs to be used for evaluation of the FMC104 on a SP601 development board.
- 10) From a command window browse to "C:\Program Files\4DSP\FMC Board Support Package\Bins" and run the application that matches your FMC card. Refer to Table 2. A list of Ethernet devices is shown. Look for the Ethernet device that connects to the development board. Now rerun the application with two command line parameters X and Y, where X is the index of the Ethernet device and Y is the clock source. Y can be 0 or 1 for either an internal clock (0) or an external clock (1).

FMC series	FMC Types	Application
FMC10x series	FMC108, FMC107, FMC104, FMC103	Fmc10xApp.exe
FMC110 series	FMC110	Fmc110App.exe
FMC204 series	FMC204	Fmc204App.exe
FMC12x series	FMC122, FMC125, FMC126	Fmc12xApp.exe
FMC150 series	FMC150	Fmc150App.exe

**Table 2: Application overview**

- 11) The sample data is stored in the folder "C:\Program Files\4DSP\FMC Board Support Package\Bins" for each channel an ASCII file and a binary file is created (bufx.txt (ASCII) and bufx.bin (Binary)).
- 12) The DAC outputs (if applicable) will show a sine wave.

## 2 Documentation

For each board type a user manual and reference design description is installed in "C:\Program Files\4DSP\FMC Board Support Package\Docs". For several specific VHDL modules a local "doc" folder is added which contains some specific documentation for these modules.