FMC-NKS-401210 High Pin Count FMC Module
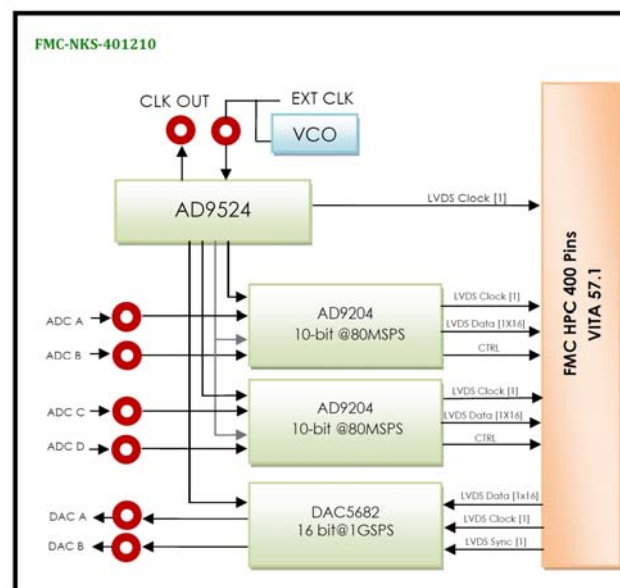
4- Channel 10-bit ADC 80MSPS
2- Channel 16-bit DAC 1GSPS

Description

The FMC-NKS-401210 is a four-channel 10-bit ADC at 80MSPS synchronous and maximum sampling rate and dual channel 16-bit DAC at 1GSPS synchronous and maximum sampling rate. This module was designed based on dual-channel AD9204 ADC of Analog Device Company with DDR LVDS or CMOS outputs and dual-channel DAC5682 DAC of TI Company with DDR LVDS inputs. Because of containing a FMC-HPC connector, FMC-NKS-401210 is mechanically and electrically compliant to VITA 57.1 standard. Controlling of clock source, sampling frequency and calibration by a SPI BUS are its other features. The sample clock can be supplied from PLL clock generator, externally through a coax connection or supplied by an internal clock source (VCO). This module can use on every carrier card which follows the VITA 57.1 standards; therefore it can have the maximum data throughput and minimum latency.

Functional Block Diagram

Support: support@niksoo.comwww.niksoo.com
Email: info@niksoo.com

Features

ADC's:

- 4 Channels, 10-bit Resolution, 80 MSPS
- Differential Analog Input with 650MHz Bandwidth
- 1.8V CMOS or LVDS Output Signal
- SNR > 75 dBFS @ 20 MHz and 80 MSPS
- SFDR > 85 dBc @ 20 MHz and 80 MSPS
- ENOB > 12.5 Bits @ 20 MHz and 80 MSPS
- Flexible Analog Input Range: 1V p-p to 2V p-p
- Xtalk Isolation > 95dB
- High Performance AC-Coupled Analog Input
- Serial Port Control
- Low Power: 750 mW @ 125 MSPS
- Pin Compatible with AD9258, AD9251, AD9231 and AD9204.

DAC's:

- 2 Channels, 16-Bit, 1GSPS Update Rate
- 16-Bit Input LVDS Data Bus
- Analog Output with 500MHz Bandwidth
- Phase Noise > 100dBc @ 1kHz and 1GSPS
- Serial Port Control
- 2x-32x Clock Multiplying PLL/VCO
- 2x or 4x Interpolation Filters
- High Performance AC-Coupled Analog Output
- Compatible with DAC5681

Other:

- VITA 57.1 Compliant
- FMC Interface Connector for Digital Output, Power LEDs and Single-ended SMC or other Connectors for AIN, AOUT& EXTCLK
- Flexible clock tree enables Internal (VCO) and External Clock
- Direct ADC/DAC Connection to Host FPGA Ensures
- Operating temperature: -40°C to +85°C (Industrial)
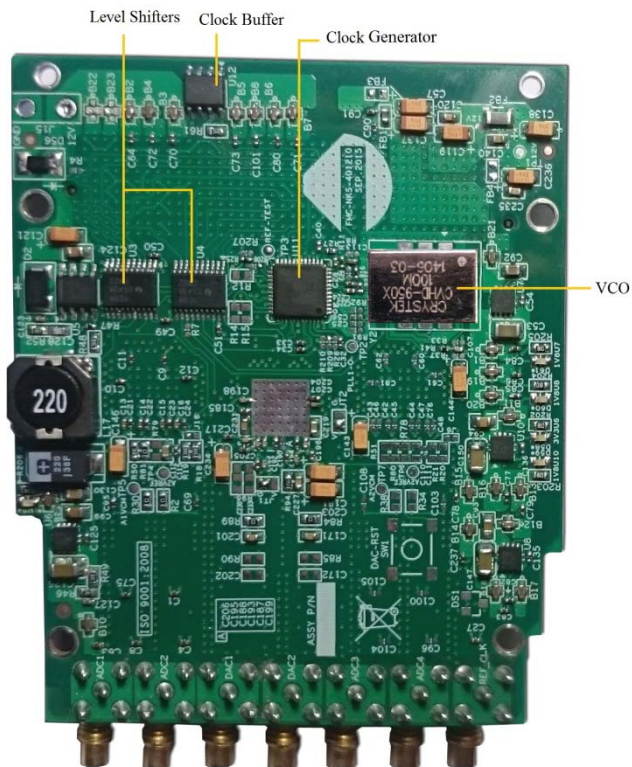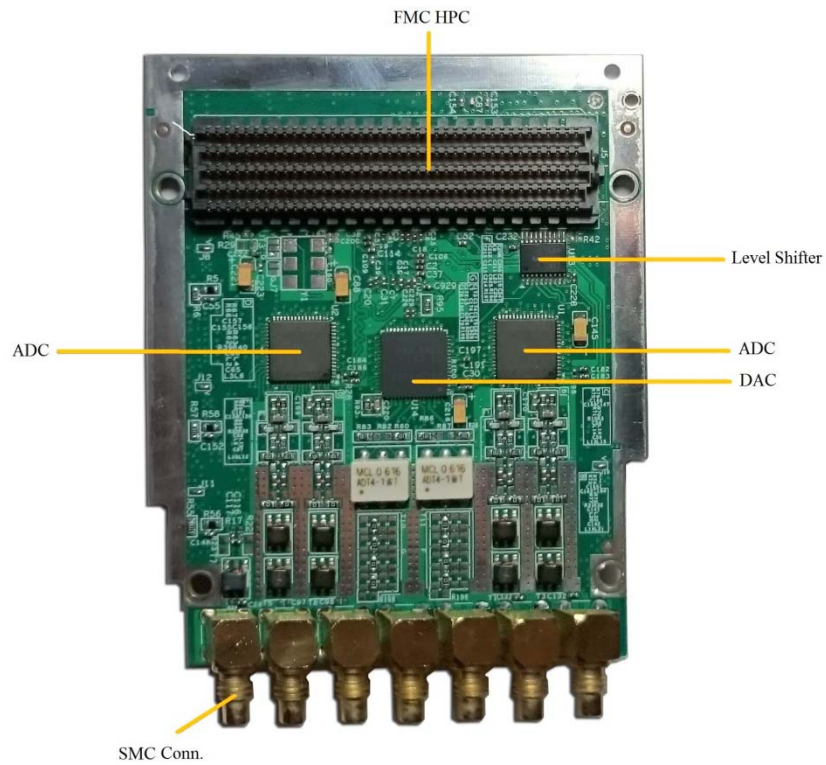- Physical Dimensions (L: 83.8 mm, W: 69 mm)

Application

- Radar/SONAR
- Wide Band-Width Communications
- Ultrasound Equipments
- Software Defined Radio (SDR)
- Medical Equipment
- Advanced control systems and Remote forwarding

Support

- NIKSOO Platforms Reference Design Available
- User Manual
- Reference Firmware Design (VHDL)
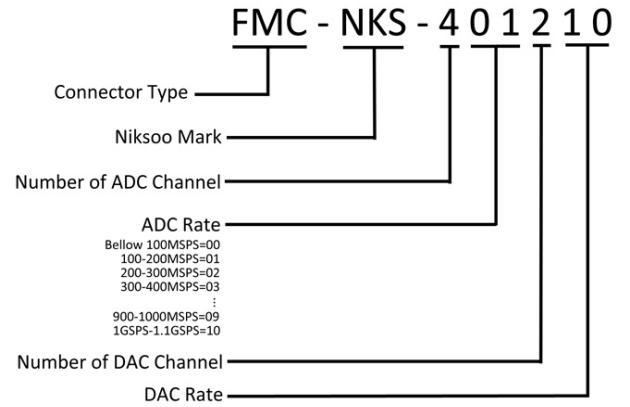- Reference ISE Project for Virtex-6 and Kintex-7

Board Features

FMC HPC

Level Shifter

ADC

ADC

DAC

SMC Conn.

Level Shifters   Clock Buffer

Clock Generator

VCO

Compatibility Table

Platform	Compatibility
FMC-NKS016-PCIE-A	Yes
FMC-NKS106-PCI-A	Yes
FMC-NKS-V106-A	Yes
FMC-NKS016-PCIE-B	Yes
FMC-NKS-K017-PCIE-A	Yes

Order Information

FMC - NKS - 4 0 1 2 1 0

Connector Type

Niksoo Mark

Number of ADC Channel

ADC Rate
Bellow 100MSPS=00
100-200MSPS=01
200-300MSPS=02
300-400MSPS=03
⋮
900-1000MSPS=09
1GSPS-1.1GSPS=10

Number of DAC Channel

DAC Rate

FMC-NKS016-PCIe-A High Pin Count FMC & QSH Carrier
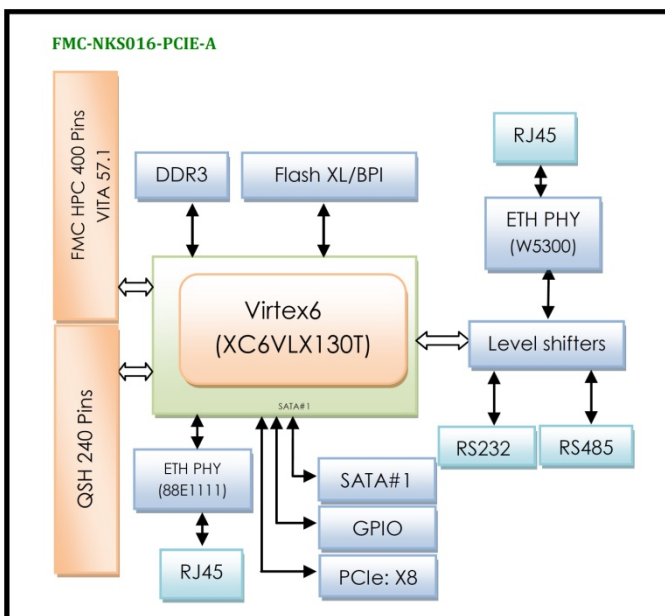# Virtex-6 Processing PCIe Card

Description

The FMC-NKS016-PCIe-A board is a high performance FMC industrial carrier card based on the Xilinx Virtex-6 LX130T FPGA family and plugged into a serial PCIe bus system unit supporting 1x, 4x and 8x PCIe data paths, Ethernet10/100 and Ethernet10/100/1000. This board also provides a developed platform for designing and verifying Virtex-6 FPGA based PCIe and stand-alone applications. Communication with a host computer via the PCIe bus and other interfaces enables users to control the card, modify algorithm settings and process real-time signals. The on-board FPGA Mezzanine Connectors (FMC) and QSH can make a high bandwidth data transfer channel with VITA 57.1 and QSH/QTH standard modules.

Functional Block Diagram

Features

- Virtex XC6VLX130T-1FFG1156C Xilinx Device
- PCI Express x8 Edge Connector
- FMC HPC for ADC/DAC FMC Modules Connect to FPGA
- QSH Connector for ADC/DAC QTH Modules Connect to FPGA
- 1 Gb DDR3 Component Memory
- Ethernet PHY 10/100/1000 Interface with RJ-45 Connector
- Enhanced 10/100 Ethernet Full Stack Interface with RJ-45 Connector
- 2x RS485 and 2x RS232 Interface Connect to FPGA
- USB JTAG Through Digilent Module
- User Push-button, Switches, LEDs
- Multi-boot Configuration
- Power on/off Slide Switch
- 12V PCIe HDD Connector or External Voltage Supply
- Physical Dimensions (L: 236 mm, W: 127mm)
- Industrial Temperature Range (0°C to 85°C)
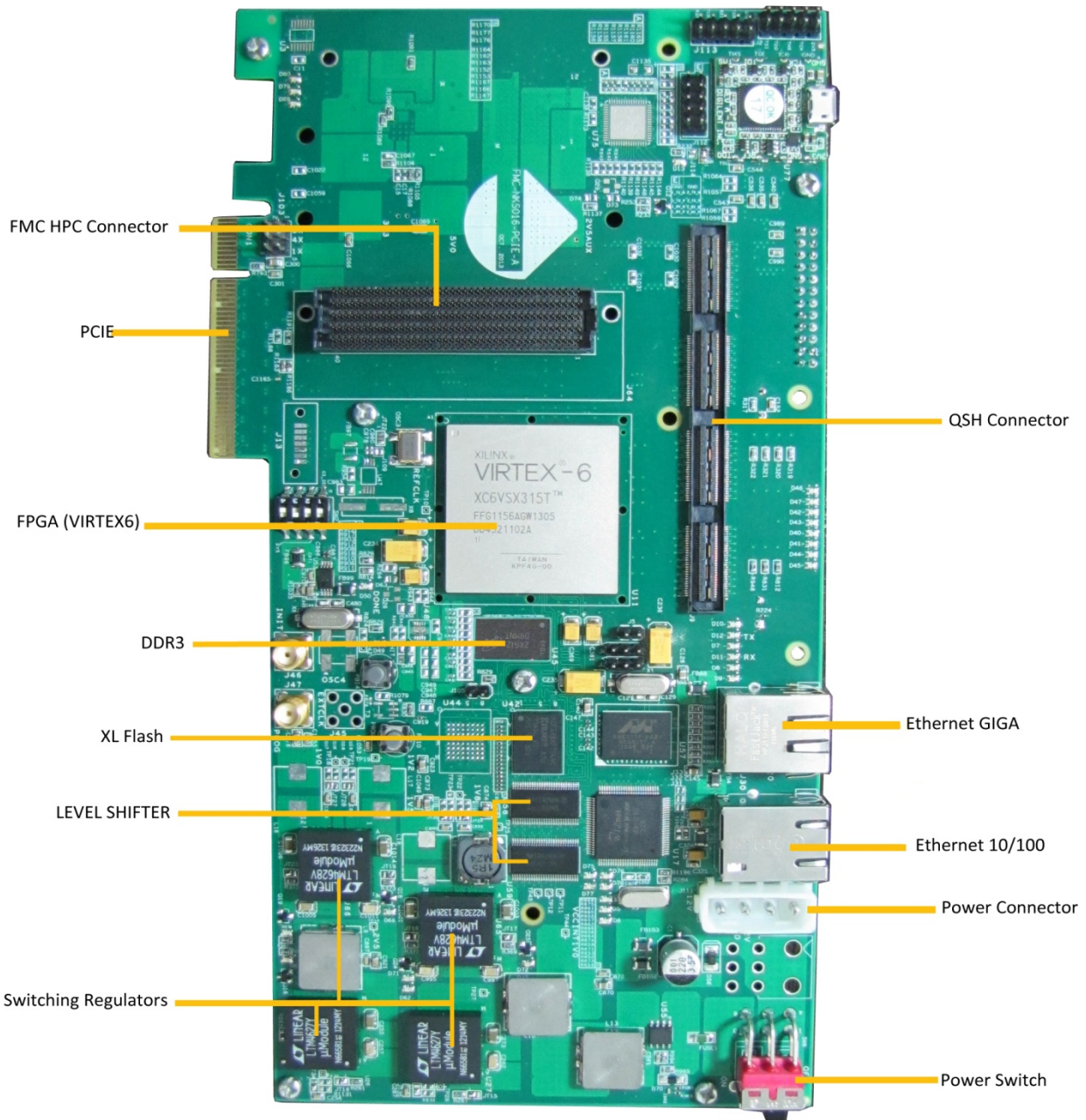- Operation System Support: Windows & Linux

Application

- RADAR/SONAR
- Communications
- Multimode Digital Receivers
- Ultrasound Equipment
- Broadband data Applications

Board Features

FMC HPC Connector

PCIE

QSH Connector

FPGA (VIRTEX6)

DDR3

XL Flash

LEVEL SHIFTER

Ethernet GIGA

Ethernet 10/100

Power Connector

Switching Regulators

Power Switch

Compatibility Table

NIKSOO Platform	Compatibility
QTH-NKS-01	Yes
QTH-NKS-02	Yes
QTH-NKS-02-A	Yes
QTH-NKS-03	Yes
QTH-NKS-07	Yes
QTH-NKS-10	Yes
QTH-NKS-11	Yes
QTH-NKS-12	Yes
QTH-NKS-11-A	Yes
FMC-NKS-210000	Yes
FMC-NKS-210210	Yes
FMC-NKS-402410	Yes
FMC-NKS-401000	Yes
FMC-NKS-000210	Yes
FMC-NKS-110110	Yes
FMC-NKS-601000	Yes
FMC-NKS-401110	Yes

Order Information

FMC - NKS 016 - PCIE - A

Connector Type
Niksoo Mark
Number of FPGA
  1xFPGA : 01
  2xFPGA : 10
  3xFPGA : 11
FPGA Series
Virtex6 :6
PC Connector Type
Revision Code