

# FPGA Development Kit

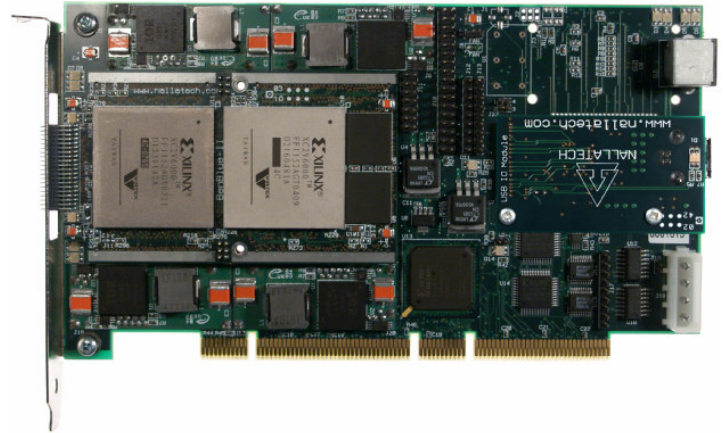
Xilinx Virtex-II FPGAs, SRAM and digital I/O



This high performance FPGA development platform provides users with a professional, easy to use and low risk solution ideal for FPGA application development.

Two tightly coupled Xilinx™ Virtex™-II FPGAs are available exclusively for user applications. Additional features include two independent banks of ZBT® SRAM memory and an 80-pin PCI backplate digital header.

The card interfaces to host computers via PCI or USB, and is supplied with software and drivers supporting both Windows® and Linux® operating systems. Documentation, example designs and VHDL source code is supplied in addition to technical support and a hardware warranty.



## Two Xilinx Virtex-II FPGAs, ZBT SRAM memory and off-card digital I/O



### Key features

- » PCI form factor with USB support
- » Two onboard Xilinx Virtex-II FPGAs. Up to:
  - 104k logic cells
  - 240 embedded multipliers
  - 4,320 kbits of BRAM
- » Two independent banks of ZBT SRAM memory
- » Multiple off-card digital I/O headers
- » Onboard programmable clock sources
- » Windows and Linux Operating System support

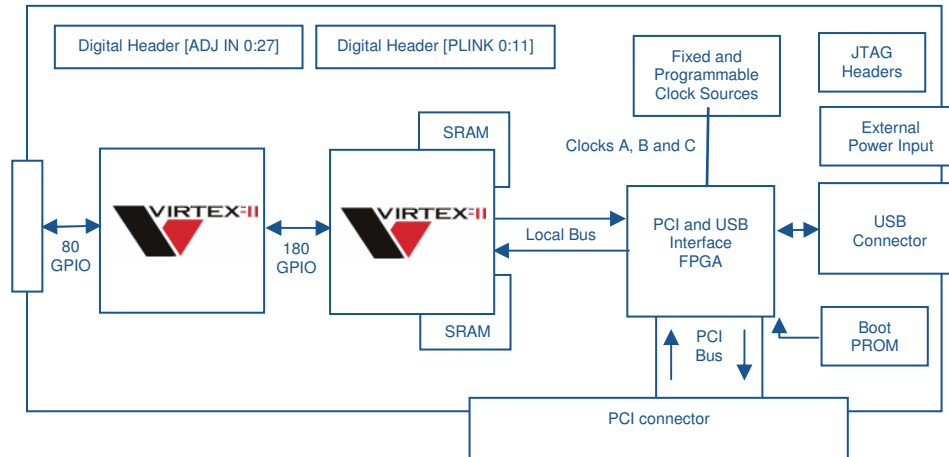
### Benefits

- » PCI and USB
  - Industry standard host computer interfaces
- » Tightly coupled Xilinx Virtex-II FPGAs
  - Ability to implement very large FPGA applications, without partitioning the design over multiple FPGA processing cards.
- » Support for multiple FPGA design flows
  - Easy application development, enhanced functionality

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Xilinx Virtex-II FPGAs, SRAM and digital I/O

## Functional diagram



## Full specification

### Form factor

- » Half-length PCI

### Host interface

- » 32-bit / 33MHz PCI Bus

### Host interface performance

- » Theoretical maximum performance 132 Mbytes/s
- » Actual performance up to 80 MBytes/s (sustained) - performance is host computer chipset and operating system dependant

### FPGA processing

- » Choice of Xilinx Virtex-II FPGAs:
  - 2V4000-4
  - 2V6000-4
  - 2V6000-5
  - 2V8000-4

### FPGA programming

- » Embedded JTAG programming through API software functions

### SRAM memory

- » 8 MB ZBT SRAM
- » Two independent 4 MB banks
- » 32-bit data bus per bank
- » Max clock frequency: 166 MHz
- » Max bandwidth per bank: 0.6 GB/s
- » Total module bandwidth: 4.8GB/s
- » ZBT SRAM controller IP core included

### Inter-FPGA communications

- » 180-bit GPIO bus

### External interfaces (Digital I/O)

- » ADJ IN [0:27]
  - 3.3V interface
  - Single-ended, bi-directional LVTTTL
- » PLINK [0:11]
  - 3.3V interface
  - Single-ended, bi-directional LVTTTL
- » PCI Backplate [0:79]
  - 3.3V interface
  - Single-ended, bi-directional LVTTTL

### Clocking

- » Two programmable clock domains and a fixed oscillator clock

### Software

- » Nallatech API for Windows 32-bit, Linux 32-bit and 64-bit.
- » Runtime FPGA programming, hardware control, and application communication.
- » API for C/C++

### Application development software

- » Compatible with Nallatech optional DIMETalk software
- » Supports multiple design flows including VHDL, Verilog®, and Xilinx System Generator®
- » Compatible with all major synthesis design flows and Xilinx ISE

### Electrical

- » On-card power derived from +3.3V and PCI slot
- » Maximum power dissipation of up to 25W via PCI slot
- » FPGA power dissipation - application dependent
- » Optional power header for applications that require more than the power available via the PCI bus

### Quality

- » Manufactured and delivered to meet IPC610-Class 3 standard.
- » Designed and Supplied to ISO9001:2000 certification

### Cooling

- » Fitted with active cooling (chip fans).
- » Passive heatsink option available on request - require forced-air cooling

### Environmental

- » Cooling: Air convection
- » Operating temperature: 0°C to 50°C
- » Storage temperature: -20°C to 80°C
- » Relative humidity: 45 to 95% (non-condensing)

## Ordering and deliverables

### Deliverables

- » PCI card, USB and external power brick accessories
- » API software and documentation CD
- » 30 days product maintenance (technical support, support lounge access)

### Additional options

- » DIMETalk software
- » FUSE Toolbox for MATLAB®

### Ordering

- » Product order codes:
  - 2V4000-4 : NT-BB2-4-4
  - 2V6000-4 : NT-BB2-6-4
  - 2V6000-5 : NT-BB2-6-5
  - 2V8000-4 : NT-BB2-8-4

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