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NALLATECH

BenPRO™

BenPRO – Virtex-II Pro™ DIME-II™ Module

Overview

The BenPRO™ module from Nallatech is designed to provide maximum scalability and maximum communications bandwidth. As part of the scalable DIME-II family, the BenPRO can be easily integrated into systems, through the range of available DIME-II motherboards and associated software/firmware.

DIME-II

Building upon the global success of the award-winning DIME standard, the DIME-II modular systems platform with TeraOPS performance enables users to harness the full capability of advanced FPGAs. DIME-II brings together unparalleled off-module I/O, flexible FPGA device support and exceptional bandwidth capabilities for next-generation systems design. The scaleable DIME-II family of products includes DIME-II motherboards, modules, firmware and software, providing a complete systems solution. The firmware and software associated with the DIME-II hardware products are designed to make FPGA and Software application design easy and integration into existing systems straightforward – reducing risk, costs and time to market.

FUSE Software

The BenPRO is fully compatible with Nallatech FUSE (Field Upgradeable Systems Environment) Software, supplied with Nallatech motherboards. The plug'n'play FUSE Software facilitates flexible and scaleable functionality for the control and configuration of FPGAs on modules and motherboards and allows data to be transferred between the motherboard and Host PC, hence allowing data transfer to and from designs running in on-board FPGAs. FUSE provides a number of interfaces, including the scripting language DIMEscript, a GUI application and the FUSE development APIs for C/C++, with optional APIs also available for Java and Matlab.

Key Features

The BenPRO module will be offered with a XC2VP30 Virtex-II PRO device. Virtex-II PRO FPGAs have embedded PowerPC processors, thus enabling a single DIME-II module to offer up to 2 hard processors and 30 thousand logic cells for computational and interfacing tasks. This can be coupled with I/O bandwidth in the order of 25Gbit/s by utilizing up to 4 Rocket I/O transceivers in addition to the standard I/O provided by DIME-II. To support on board data and program storage, 2 high-speed memory banks are included, utilising ZBT SRAM.

Parallel Processing with Virtex-II Pro

Although Virtex-II Pro has two processors, DIME-II can scale systems beyond this. For example, DIME-II will enable users to tightly couple 4 BenPRO modules on a cPCI card such as the BenERA, which provides 8 PowerPC processors on a single card. With FUSE™ this can be expanded to multiple cards, leading to an unlimited number of processors within the overall system.

BenPRO



DIME-II™ VIRTEX-II PRO

BenPRO Product Highlights

- ✓ **On-board Xilinx Virtex-II Pro FPGA**
- ✓ **FPGA features embedded Power PC Processors**
- ✓ **Single Width DIME-II Module**
- ✓ **16MBytes of ZBT SRAM memory, in two independent banks**
- ✓ **Nallatech ZBT SRAM interfacing IP Core available**
- ✓ **Up-to 4 Rocket IO ports**
- ✓ **Example designs and source code included**
- ✓ **Tricolour LEDs for FPGA Design Status**

Applications

Some examples of applications for the BenPRO are:

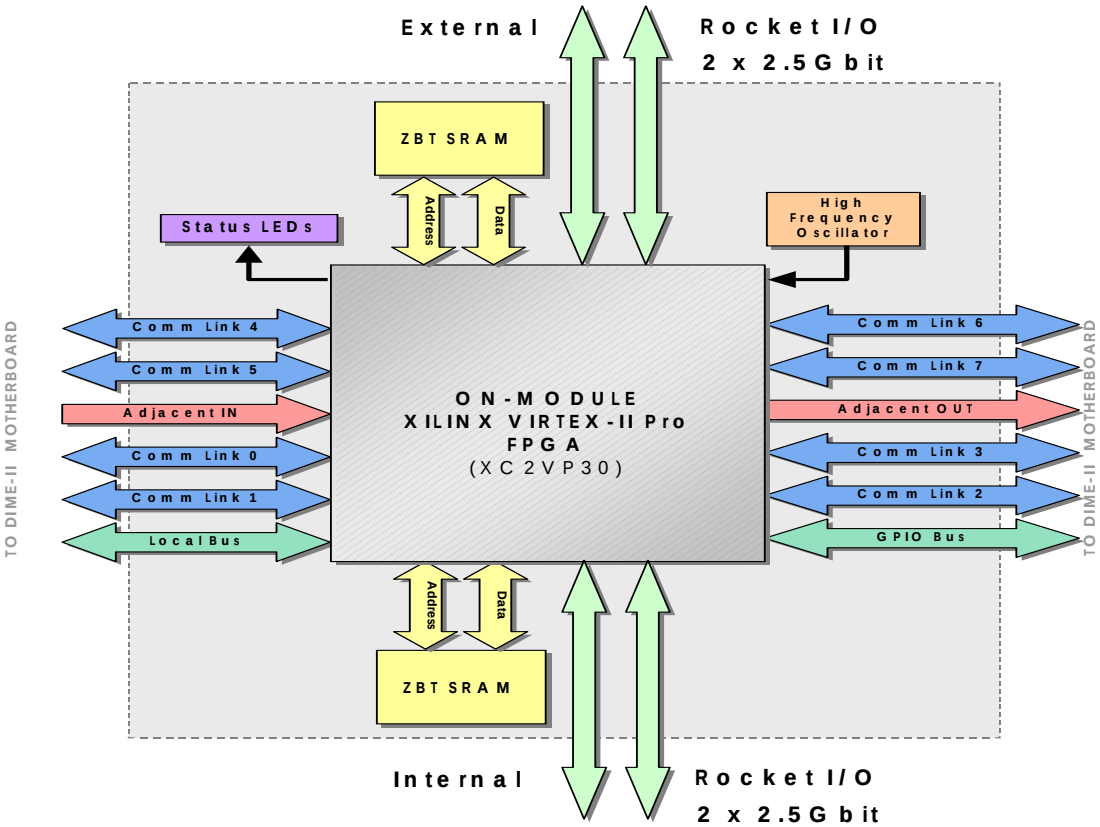
- **Embedded Processing**
- **Telecomms**
- **Data Networks**
- **Digital Signal Processing**

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BenPRO™

BenPRO Functional Diagram



BenPRO Specification

- **Xilinx Virtex-II Pro on-board FPGA**
- **Up-to 2 Embedded Power PC Processors**
- **Up-to 4 Rocket IO ports**
- **Single-slot DIME-II Module**
- **2 Independent Banks of ZBT SRAM memory**
- **Maximum ZBT frequency: 166MHz (max)**
- **Micron ZBT SRAM Memory**

Order Codes

BenPRO Option	Order Code
XC2VP30-5	BenPRO-2VP30-5
XC2VP30-6	BenPRO-2VP30-6
XC2VP30-7	BenPRO-2VP30-7

DIME-II User I/O Bus Support

Bus	2VP30
Adjacent Bus In	64
Adjacent Bus Out	64
Local Bus	64
Comm Links 0 & 2	12
Comm Links 1 & 3	12
Comm Links 4 & 6	12
Comm Links 5 & 7	12
GPIO Bus (21 bit)	21

Further Information

Contact Nallatech for further product information:

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