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Find the *Nallatech BenBlue-II* at our website: *Click HERE*

NALLATECH

# BenBLUE-II™

## 16 Million Gate Dual Xilinx® Virtex™-II DIME-II™ Module

***Single DIME-II module delivers up to 16 million programmable logic gates***

### Overview

The BenBLUE-II DIME-II module squeezes up to 16 Million programmable logic gates, 8 Mbytes of high performance ZBT memory, and interfacing capabilities into just 9 square inches. The on-board Virtex-II FPGAs and vast digital I/O to the DIME-II carrier card combine to add unparalleled processing power to any DIME-II system.

### 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 unsurpassed module-to-motherboard 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 BenBLUE-II is fully compatible with Nallatech FUSE (Field Upgradeable Systems Environment) Software, supplied with Nallatech motherboards. The plug'n'play FUSE Software facilitates flexible and scalable functionality for the control and configuration of FPGAs on modules and motherboards, allowing data to be transferred between the motherboard and Host PC, providing 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.

### BenBLUE-II Key Features

The BenBLUE-II provides a substantial logic resource – ideal for implementing applications which have a large processing element. Through supporting up to two on-board Xilinx XC2V8000 FPGAs, the BenBLUE-II can provide up to 16 million logic gates on a single DIME-II module. A major advantage of this is the ability to implement very large FPGA designs, without partitioning the design over many FPGAs or modules.

The BenBLUE-II also features on-board ZBT SRAM for storage, in addition to an 80-bit Front-Panel Connector for interfacing to the User FPGA. This connector is configurable for single-ended or differential connection. Alternatively, the Front-Panel Connector can be used to provide support for either one 16-bit, or two 8-bit RapidIO™ channels.

### BenBLUE-II




### BenBLUE-II Highlights

- ✓ **Two on-board Xilinx Virtex-II FPGAs**
- ✓ **FPGA support from XC2V4000 to XC2V8000**
- ✓ **FPGA available with various speed-grade options**
- ✓ **Up to 16 million uncommitted, completely reconfigurable logic gates**
- ✓ **400+ Module-to-Motherboard User I/O**
- ✓ **80-bit Front-panel Connector including support for RapidIO™**
- ✓ **Three on-board clock nets**
- ✓ **Two independent banks of ZBT SRAM – 4 Mbytes per bank**
- ✓ **Nallatech ZBT SRAM interfacing IP Core available**
- ✓ **On-board status LEDS**
- ✓ **Example designs and source code included**

### Applications

Some examples of applications for the BenBLUE-II are:

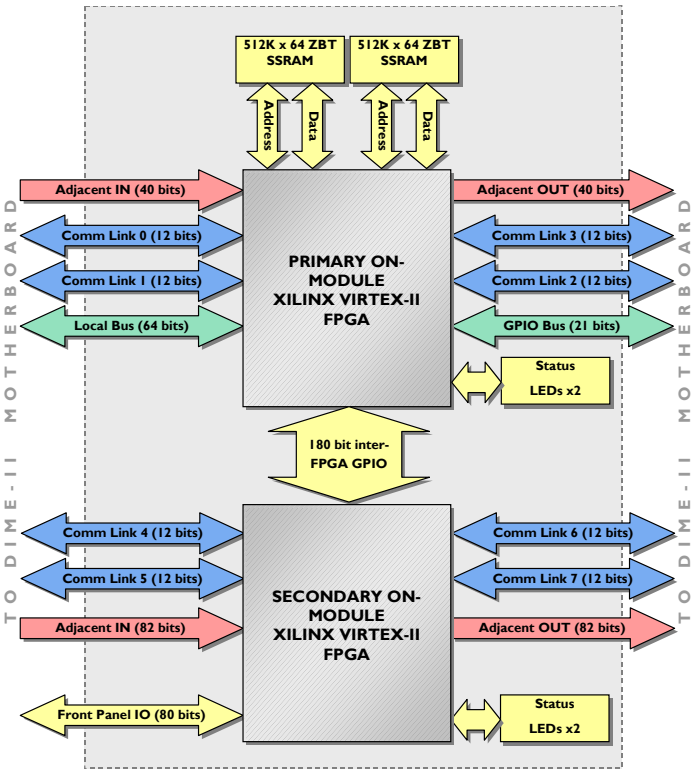
- **Image Processing**
- **ASIC Prototyping**
- **Reconfigurable computing**
- **Software Defined Radio Data Processing**



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# BenBLUE-II™

## BenBLUE-II Functional Diagram




## Example Application




The Benblue-II is suitable for a wide range of applications, including complex DSP and Image processing applications. The image above shows a 2D morphology application design in operation, running on a Nallatech system. This application has been implemented, using a combination of FPGA designs running on the Nallatech hardware, in addition to a software front-end, making use of the Nallatech FUSE Software API.

## BenBLUE-II Specification

- 2 x Xilinx XC2V4000-8000 Virtex-II FPGA
- 400+ Module-to-Motherboard User I/O
- 180 bit inter-FPGA GPIO
- 80 bit Front Panel I/O Connector that supports:
  - Multiple I/O standards
  - RapidIO™ Channels
- Two banks of 133MHz ZBT SRAM
- 4Mbytes per bank
- ZBT SRAM configuration: 512Kx64 (per bank)
- Three on-board clock nets

## DIME-II User I/O Bus Support

| Bus | All versions |
|---|---|
| Adjacent Bus In | 122 bits |
| Adjacent Bus Out | 122 bits |
| Local Bus | 64 bits |
| Comm Links 0 & 2 | 12 bits (per link) |
| Comm Links 1 & 3 | 12 bits (per link) |
| Comm Links 4 & 6 | 12 bits (per link) |
| Comm Links 5 & 7 | 12 bits (per link) |
| GPIO Bus | 21 bits |

## Order Codes

| Product | Order Code |
|---|---|
| BenBLUE-II with XC2V4000-4* FPGA | BenBLUE-II-2V4000-x-**02** |
| BenBLUE-II with XC2V6000-4* FPGA | BenBLUE-II-2V6000-x-**02** |
| BenBLUE-II with XC2V8000-4* FPGA | BenBLUE-II-2V8000-x-**02** |

*Please specify FPGA speed grade at time of ordering.

"x" in the order code specifics the FPGA speed grade

Example: To order a BenBLUE-II with a 2V8000 FPGA with a -5 speed grade, the order code would be:

**BenBLUE-II-2V8000-5-02**

## Further Information

Contact Nallatech for further product information:


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