

ProASIC3 and IGLOO Micro-Blox

ProASIC3 and Igloo Micro-Blox are evaluation boards featuring Flash based FPGAs from Actel's ProASIC3 and Igloo product families. These Micro-Blox boards may be used as independent boards or as part of a system using Future Electronics' Longbow baseboard to enhance functionality, I/O capability and enhance communication interfaces. The Micro-Blox interface on the boards allows board-to-ribbon connection to user systems or board-to-board development to the Longbow baseboard.

The ProASIC3 and IGLOO Micro-Blox boards have a common design and support two common footprint FPGA products from Actel listed below:-

FPGA	Description	Gate Count	Micro-Blox
M1A3P1000-FGG484	Low Power ProASIC3 Flash Based FPGA	1,000,000	ProASIC3 Micro-Blox
M1AGL1000V2-FGG484	Low Power Igloo Flash Based FPGA	1,000,000	Igloo Micro-Blox

FPGAs on Proasic3 and Igloo Micro-Blox

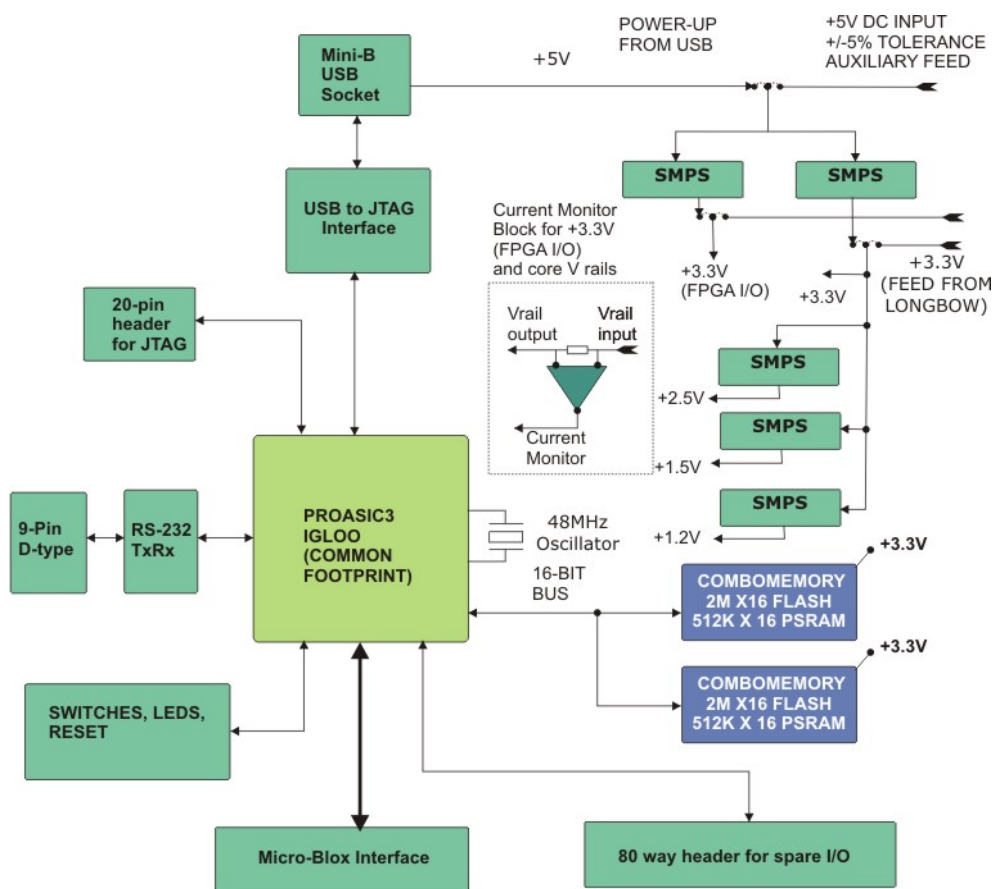
Both selected FPGAs have ARM Cortex-M1 processor support.

The ProASIC3 series of FPGAs offers a breakthrough in power, price, performance, density and features for today's most demanding high-volume applications. The ProASIC3 family is based on non-volatile flash technology and supports gate counts ranging from 10,000 up to 3,000,000 and I/O counts up to 620.

The IGLOO series of low-power FPGAs are designed to meet the demanding power, area and cost requirements of today's portable electronics. The family offers the industry's lowest power consumption – as low as 5uW. The IGLOO family supports up to 3,000,000 gates with up to 504kbits of dual-port SRAM, up to 6 embedded PLLs, and up to 620 I/Os.

ProASIC3 & IGLOO Micro-Blox features:-

- FlashPro3 programming/debugging circuit with USB interface
- Flash*freeze interface circuit, enabling flash*freeze low power operation for IGLOO FPGA
- ProASIC3 or IGLOO FPGA
- 20-pin header for direct JTAG connection for programming and debug
- RS-232 interface
- Power-up from USB, Auxiliary +5V regulated power supply, Longbow +3.3V power rail feed
- External memory: 2M x 32 FLASH + 256K x 32 Pseudo SRAM
- Local switches and signalling LEDs, reset, timing crystals
- Current monitor circuits for +3.3V, +2.5V, +1.5V and +1.2V rails
- 160 Pin Micro-Blox Interface
- 80 pin header for spare I/O



USB (HOST); CAN; 3 X UARTS; ETHERNET MII;
6 X PWM; 4 X TIMERS; 4 X INTERRUPTS;
EXTERNAL CLOCK; 8 X ADC; SPI; 2 X I2C;

Tools Provided

The ProASIC3 and IGLOO Micro-Blox are configured with Flashpro3 circuitry to enable programming and debugging using Actel's suite of free development tools. With Libero integrated design environment installed on a user's PC the complete design flow, including hardware programming onto the target device can be completed with a single USB connection to the Micro-Blox.

Added functionality in combination with Longbow baseboard

For added capability enabling full system evaluation the ProASIC3 and IGLOO Micro-Blox may be used with the Longbow baseboard. VHDL code is developed which supports the following:-

- ARM Cortex-M1 32-bit Core
- Real-time clock and watchdog
- Memory Controller
- AES encryption
- BCD converter
- SD card controller
- SPI module
- I2C module
- PWM module
- 2 x UARTs
- LCD controller

The combined Longbow and ProASIC3 and IGLOO Micro-Blox package can support the following additional features:-

- RS-232 ; IrDA ; RS-485 & CAN2.0B*
- USB2.0 Host and OTG ports*
- Status LEDs and power LEDs
- 20x2 interface for Bluetooth and WiLAN modules
- 20x2 header supporting ZigBee wireless modules
- SD memory card interface
- Interface for 16x2 alphanumeric LCD
- Small Buzzer for tone audio feedback
- Ethernet port supporting 10/100BASE-T/TX with precision time stamping for IEEE1588 applications (DP83640TVV from National Semiconductor)*
- 160 position Futureblox Rev 2.3 board-to-board interface
- Audio Codec and Class D audio amp (UDA1344 and SA58670BS-G from NXP)*
- Direct interface to a selection of TFT LCDs:

Part Number	Size	Manufacturer
NL2432HC22-41K	3.5" QVGA with integrated touchscreen	NEC
NL8060BC21-03*	8.4" SVGA	NEC
NL6448BC33-63D/C*	10.1" VGA	NEC
NL8060BC31-41D*	12.1" SVGA	NEC
NL10276BC24-13*	12.1" XGA	NEC

- Serdes support for LCD connection using National Semiconductor DS90UR124IVS serialiser
- LCD Touchscreen control (LM8300 from National Semiconductor)

* Requires further VHDL development

Ordering Information

Part Numbers:-
PROASIC3-MICRO-BLOX
IGLOO-MICRO-BLOX

Register for your free board through
www.my-boardclub.com