2110
SYSTEM CONTROLLER

FEATURES

- *NIOS II 32-bit RISC processor w/50 MHz clock embedded in the delivered Cyclone III FPGA NOIS II supported by 1 MB SRAM and 2 MB FLASH code storage.*
- *Embedded multi-task multi-threaded real time operating system (ROTS)*
- *10/100 Ethernet port supported by target specific iNiche code stack (Cyclone/RTOS targeted), hardware PHI and embedded ethernet support core.*
- *8 serial ports, five RS-232 and 3 RS232/422 (selectable) supported by embedded UARTS and port drivers.*
- *Daughter Card I/O supported by 4 embedded 1 megabaud FUARTs and 18 watt 12 VDC power feed supported by embedded FUART drivers with up to 18 watt 12 VDC power feed.*
- *12 discrete control bits, 8 outputs and 4 selectable I/O.*
- *5 status LEDs and 8 on-board BIT LEDs accessible by the NIOS II.*
- *4 16-position HEX switches, 1 4-station DIP switch,1 8-station DIP switch and 4 pushbutton switches all accessible by the NIOS processor for settings and controls.*
- *Input power is 18-30 VDC at up to ## watts. With in-line fuse.*

DESCRIPTION

The 2110 System Controller is a proven design that provides a means to robustly control several devices from a single ethernet port.

The System Controller is designed as a resource board offering an OEM 8 serial interfaces, 8 input discretes, 4 output discretes, a 10/100 ethernet port and a daughter card port all interfaced to a configured Intel/Altera Cyclone III FPGA. The daughter card port is a 40-pin header delivering up to 1.5 amps of 12VDC and 4 FUART ports capable of megabaud transfer rates each.

The FPGA configuration provides I/O interfaces for all the serial, ethernet and daughter card resources. A NIOS II risk processor is implemented running with a 50 MHz clock and provides a robust processing environment to address a wide range of control and computational needs. The NIOS II is supported by a 1 MB SRAM.

The 2110 is delivered with a baseline line firmware package that includes Micrium OS/II real time operating system (ROTS) and a Cyclone focused Iniche stack to provide full Ethernet socket management. A I/O port assignment system for tasks is also furnished that permits one to assign an I/O port to a task at task creation. A function called Manifest is included that provides a means to start the System Controller with a specific list of tasks while leaving a universe of task modules inactive in the main code set.

The daughter card interface is provided to address those special control, computational or interface needs that cannot be handled by the existing resources, while still offering the ability to control, receive status and collect data from any unique device.

The 2210 System Controller is a PWA designed to operate from -20²C to +80°C in a non-condensing 95% humidity environment. The controller is 6.5" x 7" with a skyline high less than 1.".

This product is designed and manufactured in California, USA by ITS.

SPECIFICATIONS

Processor	Altera 32-bit NIOS II RISC Processor wit, 50MHz clock	Included is the Micrium OS/II multi-threaded, multi-tasking real time operating system.
SRAM	1 Mbyte	Storage for operating code, stacks, and heap.
Flash Ram	2 Mbyte	Storage for the FGPA core object (encrypted) and all application code.
Ethernet Port	10/100 Ethernet	Embedded PHI interface, and firmware that includes iNiche code stack that can open up to 4 TCP//IP clients at one time and manage UDP communications.
RS-232 Ports	5, 2400 to 115K baud RS-232C	Embedded UARTs in the Cyclone FPGA support programmability of baud rate, buffering and port assignment. Directly accessible by the NIOS II processor
RS-232/422 Ports	3, may configured as RS-232 or RS-422 jumper selected. 2400 to 115K baud	
Discrete I/O	4 at up to 24VDC at 1 A max sink 4 at 12 VDC at ¼ amp sourcing 4 TTL or contact closure inputs (10K pullup to 5 VDC)	Directly accessible by the NIOS II processor.
Indicators	13 LEDs 1 green – power on 1 green (Ethernet) active 1 green (Ethernet) E100 1 amber (Ethernet) selected 1 yellow (Ethernet) network activity 8 blue for programmable uses	Blue LEDs accessible by the NIOS II process for status and self-test functions.
Programmable Switches	4 16-position HEX coded rotary switches, 1 4 station DIP, 1 8-station DIP, 4 push buttons.	Contact status accessible by the NIOS II processor
Daughter Board Interface	40-pin header, includes 20 signal lines plus 12 and 3.3 VDC power	Signal lines configured to support 4 1-megabaud FUART (TTL) ports intended to control an unspecified device (devices) and special purpose function boards.
Input Power	24VDC ± 6 VDC	
Environmental	Operating Temp: -40° to 80°C Storage Temp: -40° to 85°C Humidity: 95% non-condensing	
Physical	Single PCA Dimensions: 6.5"x7"x1" Weight: 11 oz	

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