SIGNALWARE Corporation

TMS320C6x "micro-line" MODULE
8-96 Line Digital I/O Peripheral
ORS-119 (LVTTL, LVDS, Opto)

DSP Solutions Texas Instruments ©1999 TI

ORS-119 DATA SHEET

The Signalware ORS-119 is a Digital I/O Peripheral Card for Texas Instruments micro-line DSP card products built by ORSYS. The Signalware micro-line peripheral cards with ORSYS micro-line DSP CPU cards rapidly construct standalone DSP systems. These cards build inexpensive, production-ready system with minimum time-to-market.

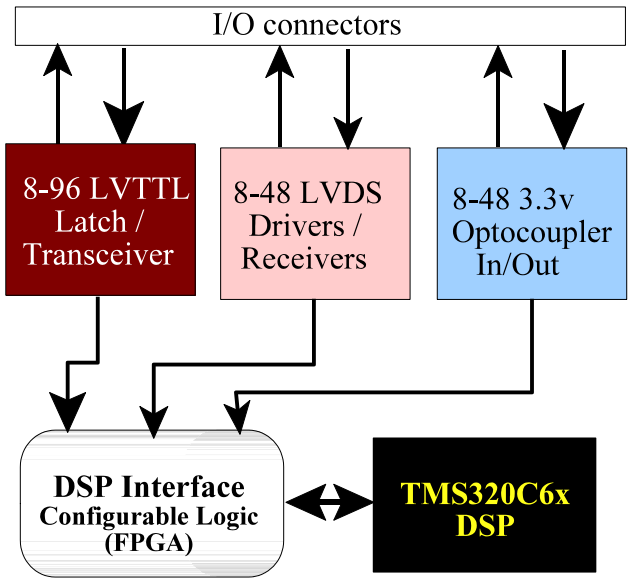
The micro-line stack consists of a base power supply board, analog or digital peripheral cards and a DSP CPU card connected vertically with micro-line stacking connectors. The ORS-119 fits into the micro-line stack as an external analog interface. Multiple ORS-119 cards can be stacked or stacked with other analog interface cards. A wide variety of DSP CPUs and digital interface cards are also available for the micro-line stack.

Alternately, the ORS-119 peripheral card may be mounted on TI DSP Starter Kits (DSKs) using an ORS-900 adaptor card. This provides a convenient and low cost way to build a prototype of the micro-line production-ready system.

The ORS-119 peripheral card can accommodate either LVTTL , LVDS or Optocoupler devices to buffer or isolate the I/O lines from the micro-line bus. Six identical sections independently mount combinations of these device types. The LVTTL section can have up to either 8 in and 8 output lines or 8 bidirectional lines. The LVDS section can have either 8 drivers or 8 receivers with optional termination. The Optocoupler sections can have 8 inputs or 8 outputs. Beside these sections, the standard ORS-119 includes micro-line stack connectors, isolated supplies for Optocouplers, digital power conditioning, programmable logic interface (FPGA), and two 50-pin I/O connectors that provide access to the six sections. Additional options include 4I/4O LVTTL signal lines, on-board oscillator, expanded FPGA capability, and a 16/32-bit auxiliary DSP interface. The ORS-119 comes with an FPGA logic configuration for the micro-line bus interface and test software for the DSP to exercise the peripheral card.

For medium to large production, micro-line DSP systems cards are priced to compare favorably with custom single board solutions. The ORS-119 has production applications in discrete control equipment, and interfaces to various buses. Test equipment and research projects requiring interface of micro-line DSP systems to manufacturer supplied component EVMs are ideal uses for the ORS-119.

Configurable I/F to DSP Adds Flexibility



Configurable interface fits many applications

The many functions performed by the FPGA allow flexible, customized use of the peripheral card in the DSP system. ORS-112 accommodates either a Xilinx Spartan™ IIE FPGA (rated 50K to 300K logic gates) or Virtex™ II FPGA (rated 250K to 1000K logic gates). Serial flash memory and a JTAG connector provide for FPGA configuration.

The FPGA supports data multiplexing, FIFOs and bus control to allow efficient use of the EMIF bus with appropriate transfer frame sizes. The combination of on-board oscillator or external clock input, selectable clock countdown and FIFOs allow for precise sample rates to meet the application needs asynchronous to DSP clocks.

Although the standard logic configuration provided has many selectable options to meet the needs of most users, custom configuration of the FPGA can meet special needs of applications. Very high speed digital signal pre- or post-processing may be added to the FPGA configuration.

Analog Performance depends Power Quality

High resolution analog converters require high quality DC power to perform at their best. The ORS-119 has isolating converters and regulators to produce the analog 3.3 and 5 V for the A/D and D/A converters. The power converters are synchronized to sample rates of the mixed signal devices.

ORS-119 Specifications

LVTTL Interface:
1/6 - TI 74LVTH(2)245 Octal Transceiver *
3.3v bidirectional (5v tolerant) I/O
Up to 100 MHz switching rates
1/6 - TI 74LVTH573 Octal Latch *
3.3v Outputs

LVDS Interface:
2/12 - TI 65LVDS047 Quad Differential Driver *
2/12 - TI65LVDS048A Quad Differential Receiver *
50 ps channel-to-channel skew
>400 Mbps (200 MHz) Signaling Rates

Isolated Interface:
4/24 - Agilent HCPL-063L Dual Opto-coupler *
3.3v Input or Output - 15 Mbd typical speed
> 500v peak In/Out Working Voltage

Digital Interface to CPU (m-l A, B, BB, C, D, E, X**):**
Xilinx FPGA - 32-bit micro-line interface or
16-bit dedicated compact DSP card interface

External Digital Interfaces:
JTAG - 7 pin FPGA Configuration Interface
Digital I/O (w/ clock in) - 10-pin dual row 50 mil header

External Analog Interfaces:
50-pin/26-pin connectors - dual row 2 mm header

Power Interfaces to Base (m-l connectors D and P):
+5 or +3.3 VDC (digital) - 2.4 Watt max
+12 VDC (isolated supply) - 1.5 Watt max

Operating Temperature Range: 0 to 64 deg C ambient at board surface with minimum air flow

Size: 123 mm L x 67 mm W x 11 mm H (stacking height)

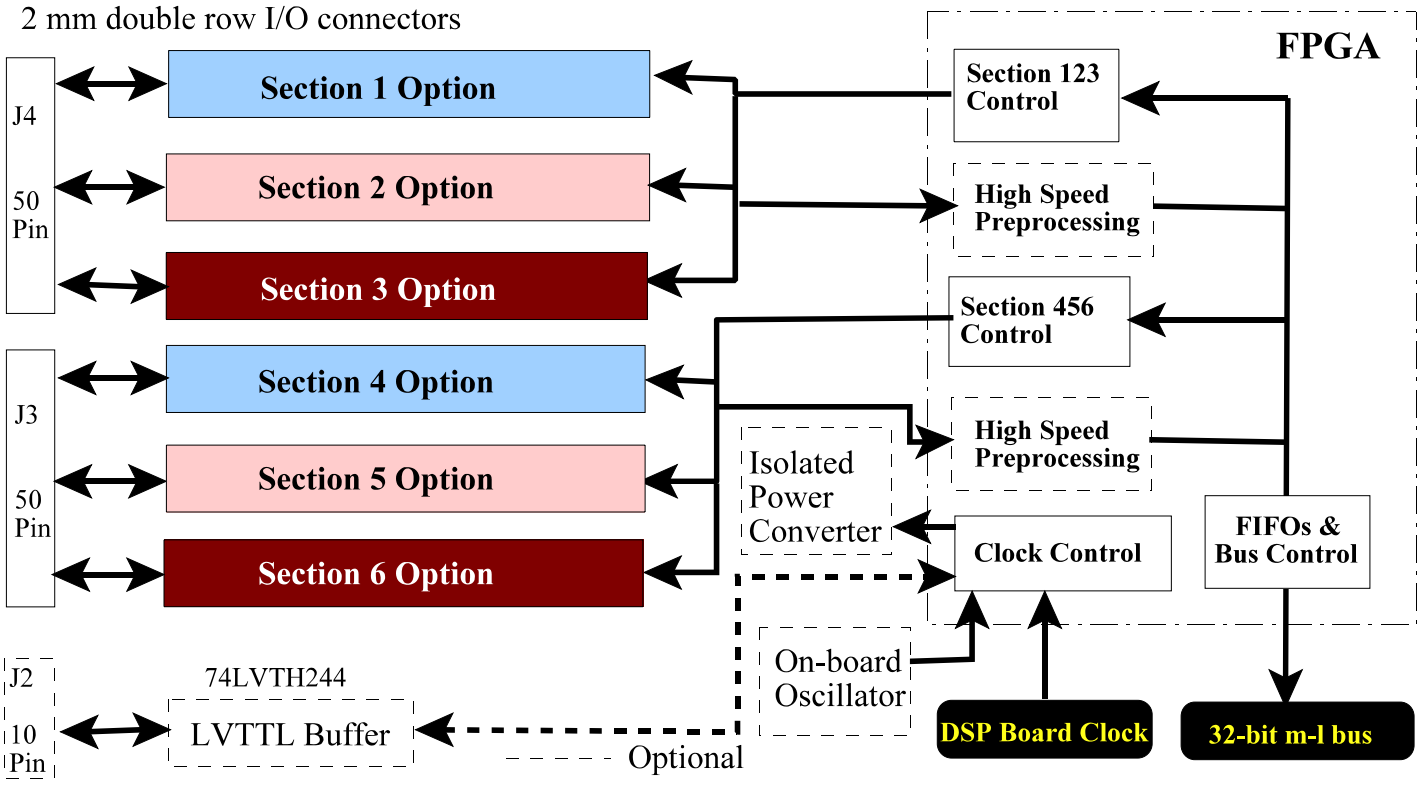
Net Weight: 0.075 (0.165) kg (lb)

Configuration Information

ORS-119 Analog Peripheral Card with Spartan IIE or Virtex II. Configurations available with any of 9 section types in any or all of the 6 sections. Selection of models immediately available in small quantities is limited.

Options:
- 25 to 50 MHz On-board Oscillator
- 5.0 or 3.3 volt power supply
- Auxiliary Dedicated Compact Interface
- External Clock Input
- Custom FPGA Configuration

* Manufactures device specifications, not re-measured on board.



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