



## iPORT NTx-U3 Embedded Video Interface

Rapidly add high-performance USB3 Vision connectivity to systems and cameras

### Overview

Pleora's iPORT™ NTx-U3 Embedded Video Interface hardware provides system and camera manufacturers with a straightforward way to integrate USB 3.0 video connectivity into their products. With the NTx-U3 Embedded Video Interface, manufacturers can shorten time-to-market, reduce development and deployment risk, and lower design and system costs.

Pleora's NTx-U3 Embedded Video Interface interacts seamlessly with Pleora's other products in networked or point-to-point digital video systems. It also complies fully with the USB3 Vision™ and GenICam® standards, ensuring interoperability with third-party equipment in a multi-vendor environment. The embedded hardware converts video data to packets at throughputs up to 3 Gb/s. The packetized video is then sent with low, consistent latency over a USB 3.0 link to receiving software.

To speed time-to-market, Pleora offers a Development Kit for the NTx-U3 Embedded Video Interface. This kit allows manufacturers to produce system or camera prototypes and proof-of-concept demonstrations easily and rapidly, often without undertaking hardware development.

### Related Products

The iPORT NTx-GigE, together with the iPORT NTx-U3 for USB3 Vision™ connectivity family, are pin-compatible hardware solutions that provide manufacturers with a cost effective approach to support all video interface needs.

### Features

- Compact and low power
- USB3 Vision and GenICam compatible
- Throughput of up to 3 Gb/s
- Up to 32-bit, 120 MHz parallel LVTTTL/LVCMOS video input, and 4 interleaved taps
- Line scan and area scan modes
- 120 MB frame buffer to accommodate multi-mega pixel sensor sizes
- Can support either USB-powered or external-powered options
- Updateable firmware via the USB 3.0 port for ease of manufacturing and feature upgrades in the field
- Record and Playback
- Programmable Logic Controller

Pleora's iPORT NTx-U3 Embedded Video Interface is supported by:

- An evaluation kit to help speed time-to-market by enabling the rapid design of prototypes and proof-of-concept demonstrations, often without requiring hardware development;
- eBUS™ SDK, a feature-rich application development toolkit for manufacturers to rebrand and distribute with their end-products;
- The AutoGen XML generation tool and a firmware reference design, which makes it fast and easy for manufacturers to create a user-friendly GenICam interface for their products.

**USB**<sup>™</sup>  
VISION  
**GEN<i>i>CAM**

For more information, visit [www.pleora.com](http://www.pleora.com)



## iPORT NTx-U3 Embedded Video Interface

### Hardware

User Circuitry Interface	100-pin Samtec Connector: LSHM-150-04.0-L-DV-A-N-TR
External Interface	12-pin Hirose Connector: HR10A-10R-12PB(71)
USB 3.0 Interface	10-pin USB 3.0 Micro-B Receptacle
USB 3.0 Controller	Cypress FX3
FPGA	Altera Cyclone V
Image Buffer	120 MB 16-bit wide DDR3
Persistent Memory	128 Mb Serial FLASH
Clock Generator	Included
JTAG Header	Connection to FPGA

### Inputs/Outputs on User Circuitry Interface

Video Input	2.5V LVTTTL/LVCMOS
GPIO Inputs	4 x 2.5V LVTTTL/LVCMOS
GPIO Outputs	4 x 2.5V LVTTTL/LVCMOS
UART/USRT Inputs	3 x 2.5V LVTTTL/LVCMOS
UART/USRT Outputs	3 x 2.5V LVTTTL/LVCMOS
Camera Control Outputs	4 x 2.5V LVTTTL/LVCMOS

### Ordering Information

903-0001	• iPORT NTx-U3 OEM Basic Board Set, USB-powered. Without 12-pin circular connector.
903-0004	• iPORT NTx-U3 OEM Basic Board Set, external-powered. Without 12-pin circular connector.
903-0002	• iPORT NTx-U3 OEM Board Set, USB-powered includes 12-pin circular connector, soldered on with metal flange.
903-0005	• iPORT NTx-U3 OEM Board Set, external-powered includes 12-pin circular connector, soldered on with metal flange.
903-0003	• iPORT NTx-U3 Development Kit, USB-powered includes 903-0002, NTx-Mini adapter board with 3 flat flex cables, prober board, USB 3.0 cable, and eBUS SDK USB stick.
903-0006	• iPORT NTx-U3 Development Kit, external-powered includes 903-0005, NTx-Mini adapter board with 3 flat flex cables, prober board, power supply, USB 3.0 cable, and eBUS SDK USB stick.

### Frame Grabber

Number of Channels	1
Scan Modes	Area Scan (Progressive) and Line Scan
Pixel Depth (bits)	8, 10, 12, 14, 16, 24, 32
Pixel Clock	• Min: 20 MHz • Max: 120 MHz
Taps per Data Channel	Up to 4
Image Width (pixels)	• Min: 8 • Default: 640 • Max: 16,376 • Increment: 8
Image Height (pixels)	• Min: 1 • Default: 480 • Max: 16,383 • Increment: 1
Windowing/Region of Interest	Yes
Tap Reconstruction	Interleaved only

### Characteristics

Size (LxWxD)	37.0mm x 37.0mm x 23.1mm (approximate, excluding External Interface connector)
Weight	TBD
Operating Temperature	Commercial*
Storage Temperature	-40°C to 85°C
Power Supply	USB Powered: 5 Volts nominal External Powered: 4.8 to 16 Volts nominal
Power Consumption	Less than 2 Watts when streaming at 3 Gbps
MTBF at 40° C	1,277,505 hours

### GPIO on 12-Pin Circular Connector

GPIO Inputs	4 connections routed to User Circuitry Interface
GPIO Outputs	3 connections routed to User Circuitry Interface
UART/USRT Input	Connection routed to User Circuitry Interface
UART/USRT Output	Connection routed to User Circuitry Interface

\* Case and junction temperature limits vary by IC device. Please refer to User Guide for specific IC operating temperature specifications and thermal management information.