

# iPORT NTx-NBT25 Embedded Video Interface

Transmit uncompressed images at 2.5 Gbps over standard Cat 5e Ethernet cabling



## Overview

Pleora's **iPORT™ NTx-NBT25 Embedded Video Interface** hardware helps manufacturers shorten time-to-market, reduce risk, and lower costs by providing a straightforward way to integrate GigE Vision® 2.0 video connectivity over NBASE-T into imaging devices and systems.

Simplify and accelerate your development. Connect your sensor to Pleora's iPORT NTx-Deca and the off-the-shelf solution seamlessly handles 10 Gbps video and sensor transport over a flexible Ethernet connection. GigE Vision 2.0 compliance streamlines interoperability in multi-vendor imaging systems and applications.

The NTx-NBT Embedded Video Interface supports 2.5 Gbps transmission of uncompressed images over a standard Cat 5e Ethernet cable for distances up to 100 meters. The video interface complies with the GigE Vision 2.0 and GenICam™ standards, ensuring interoperability in multi-vendor networked or point-to-point digital video systems. The compact hardware solution is easily embedded into flat-panel X-ray detectors, imaging systems, and cameras. The product supports the IEEE 1588 Precision Time Protocol to synchronize image capture functions and other system elements, enabling the exact triggering of image acquisition. Integrated image management allows users to track and retrieve images that are transmitted during a particular acquisition session.

Pleora's iPORT NTx-NBT25 Embedded Video Interface is supported by:

- A Development Kit to help speed time-to-market by enabling the rapid design of prototypes and proof-of-concept demonstrations, often without requiring hardware development;
- The GenICam Integration Package (consisting of the iPORT AutoGen XML generation tool and a firmware reference design) which makes it fast and easy to create a user-friendly GenICam interface (contact sales for pricing information on this integration package).

## Features

- Supports 1/2.5 Gbps transmission rates for uncompressed images over standard Cat 5e Ethernet cabling for distances up to 100 meters
- Small footprint embedded hardware easily integrated into existing and new imaging device designs
- GigE Vision 2.0 compliance ensures interoperability in multi-vendor digital video systems
- GenICam compliant interface provides easy access to programming features and simplifies integration of imaging devices into existing or new systems
- Supports IEEE 1588 Precision Time Protocol (PTP) to synchronize image capture and imaging system elements
- Integrated programmable logic controller (PLC) lets users control external machines and reacts to inputs — make functional changes, adjust timing, or add features without requiring new hardware
- Image management tags an image or group of images with metadata — provides context necessary to retrieve image data from the on-board frame buffer in event of power or network failure at the receiver
- 512 MB Image buffer
- Image store capability up to 4096 images deep
- Supports line scan and area scan modes
- Field upgradable firmware

# iPORT NTx-NBT25 Embedded Video Interface

Frame Grabber		Hardware	
Number of Channels	1	User Circuitry Interface (Including Internal Power Interface)	Two 40-pin Hirose Connectors FX6-40S-0.8SV2(93)
Scan Modes	Area Scan (Progressive) and Line Scan	External Power Interface	2-pin 0.10" header
Pixel Depth (bits)	8, 10, 12, 14, 16, and 24 bits	NBASE-T Interface	RJ-45
Pixel Clock	<ul style="list-style-type: none"> <li>5 MHz to 154 MHz (for version 2.4.4 and later)</li> <li>5 MHz to 120 MHz (for version earlier than 2.4.4)</li> </ul>	NBASE-T PHY	Marvell 88X3310
Taps per Data Channel	Up to 2 for 24-bit pixel depth parallel video input	Image Buffer	512 MB
Image Width (pixels)	<ul style="list-style-type: none"> <li>Min: 4<sup>1</sup></li> <li>Default: 640</li> <li>Max: 16 376</li> <li>Increment: 4<sup>1</sup></li> </ul>	Persistent Memory	256 Mb Serial FLASH
Image Height (pixels)	<ul style="list-style-type: none"> <li>Min: 1</li> <li>Default: 480</li> <li>Max: 16 383</li> <li>Increment: 1</li> </ul>	Clock Generator	Included
Windowing/Region of Interest	Yes	Characteristics	
Tap Geometries (GenICam SFNC)	1X_1Y, 1X2_1Y, 1X, 1X2	Size (LxWxD)	72.5 mm x 56.0 mm x 17.6 mm (approximate, including RJ-45 Jack)
Inputs/Outputs on User Circuitry Interface		Weight	32.5 g
Video Input	3.3 V LVTTL / 2.5 V LVC MOS	IC Operating Temp Range	Commercial <sup>3</sup>
GPIO Inputs	4 x 3.3 V LVTTL / 2.5 V LVC MOS	Storage Temperature	-40° to +85°C
GPIO Outputs	3 x 3.3 V LVTTL	Power Consumption	Typical Power Consumption (30m CAT5e, 2.4 Gbps): 5 W
Serial (Bulk) <sup>2</sup>	3 x 3.3 V LVTTL	MTBF at 40°C	1,059,389 hours
Camera Control Outputs	4 x 3.3 V LVTTL	ECCN	5A991.b

## Ordering Information

900-8010	iPORT NTx-NBT25 OEM Board for 2.5 Gbps network transmission supporting 2.5G BASE-T
900-8011	iPORT NTx-NBT25 Development Kit for NTx-NBT25 development. Includes NTx-NBT25 OEM board mounted to a thermal baseplate, NBASE-T Ethernet desktop NIC, Cat 5e Ethernet cable, power supply, and eBUS SDK USB stick
900-8033	iPORT NTx-NBT25 Developer Bundle. Includes NTx-NBT25 OEM board mounted to a thermal baseplate (900-8010), NBASE-T Ethernet desktop NIC, Cat 5e Ethernet cable, power supply, eBUS SDK USB stick, and one year of eBUS SDK Developer Annual Maintenance and Support.

<sup>1</sup> Image width increment of 8 when in Extended Chunk Mode.

<sup>2</sup> UART, USRT, two-wire, and SPI supported on all Bulks.

<sup>3</sup> Case and junction temperature limits vary by IC device. Please refer to User Guide for specific IC operating temperature specifications and thermal management information.