# iPORT NTx-Mini Embedded Video Interface

*Rapidly add high-performance GigE Vision connectivity to cameras*

## Overview

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

For manufacturers requiring deeper levels of integration, the NTx-Mini technology is available in the iPORT NTx-Pro2 Intellectual Property (IP) package that includes an FPGA IP core, a hardware reference design, and expert design review services.

NTx-Mini embedded hardware interacts seamlessly with Pleora's other products in networked or point-to-point digital video systems. The hardware also complies fully with the GigE Vision® and GenICam™ standards, enabling interoperation with third-party equipment in multi-vendor environments. The embedded hardware converts video data to packets at GigE's full, 1 Gb/s throughput rate and sends it with low, consistent latency over a GigE link to receiving software or hardware.

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

Pleora's iPORT NTx-Mini Embedded Video Interface also includes:

- eBUS™ SDK, a feature-rich application development toolkit for manufacturers to rebrand and distribute with their end-products;
- A sophisticated on-board programmable logic controller (PLC), which allows users to precisely measure, synchronize, trigger, and control the operation of vision system elements such as strobe lights and rotary encoders; and
- The AutoGEV XML generation tool, which makes it fast and easy for manufacturers to create a user-friendly GenICam interface for their products.

## Features

- Compact and low power
- GigE Vision and GenICam compliant
- Throughput up to Gigabit Ethernet's full 1 Gb/s rate
- Up to 24-bit, 90 MHz parallel LVTTL/LVCMOS video input, and 2 interleaved taps
- Line scan and area scan modes
- 32 MB frame buffer for store-and-forward applications
- Updateable firmware via the GigE port for ease of manufacturing and feature upgrades in the field

*"Ordering Information" on page 3.*

# iPORT NTx-Mini Embedded Video Interface

## Networked Video Connectivity Solutions

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|---|---|
| iPORT™ Embedded Video Interfaces | · Highly reliable, 1 Gb/s data transfer rate with low, end-to-end latency<br>· OEM, in-camera board<br>· 32 MB of DDR2 RAM |
| eBUS™ SDK | · eBUS Universal Pro driver<br>· Sample applications, including NetCommand™ sample application, a demonstration of multi-device network connectivity<br>· Driver installation tool<br>· Documentation |
| AutoGEV™ XML Generation Tool | · Unique GenICam™ XML management tool for seamless GenICam integration |
| GigE Vision® | · Fully compliant firmware load<br>· Guarantees delivery of all packets<br>· Comprehensive data transfer diagnostics |

## Connectors

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|---|---|
| FlexEBoard | · 12-pin (Hirose HR10A-10P-12P(73))<br>· 20-pin FPC (FH12-20S-0.5SH) |
| AdaptRBoard | · 40-pin DF12(3.5)-40DP-0.5V(86)<br>· Mates with DF12-40DS-0.5V(86) |
| Network | · RJ45. Can be mounted horizontally or vertically on the NTx-Mini Main Board |
| Camera head interface | · 60-pin (Molex 51374-6073) |

## Networking Features

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|---|---|
| GigE-based | · 10/100/1000 Mb/s<br>· IEEE 802.3 (Ethernet), IPv4, IGMPv.2, UDP and ICMP (ping)<br>· Long reach: 100 m point-to-point, further with Ethernet switches or fiber |
| GigE Vision Protocol | · Guarantees delivery of all packets<br>· Comprehensive data transfer diagnostics |
| Multicast capability | · Enables advanced distributed processing and control architectures |

## Characteristics

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|---|---|
| Size (L x W) | · 42 mm X 42 mm |
| Operating temperature | · 0°C to 45°C (higher with thermal pad) |
| Storage temperature | · -40°C to 85°C |
| Power supply | · 4.5V to 16V |
| Power consumption | · From 1.6 W (input voltage and temperature dependent) |
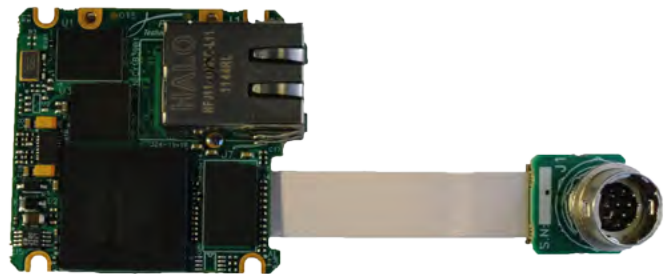


*iPORT NTx-Mini Embedded Video Interface board with horizontal RJ45 connector and soldered 12-pin circular connector*

*For more information, visit www.pleora.com*

Pleora Technologies

# iPORT NTx-Mini Embedded Video Interface

## Programmable Logic Features

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|---|---|
| **4 inputs (TTL)** **3 outputs (TTL)** **4 outputs (LVCMOS/LVTTL to camera head connector)** | · Provides a flexible, general-purpose interface · Allows synchronization of multiple devices or system elements · Flexible triggering capabilities, including Boolean combinations, deserialized Camera Link control signals, encoders, and time stamps · Built-in debouncers |
| **1 RS-232 serial link** | · Serial control of external devices via PC application over the GigE link · Can be bridged to an internal UART serial link |
| **2 UART serial links (LVCMOS/LVTTL)** | · Serial control of camera and other devices via PC application over the GigE link |
| **Delayer, rescaler, general-purpose counter** | · Allows full synchronization of line scan cameras and other system elements |
| **Timestamp trigger, counter, and reset** | · Allows system actions to be triggered based on timestamps · Allows resets to be broadcast to all iPORT IP engines in system from host |
| **Host interrupts** | · Allows host to be interrupted based on events on any input or internal signal |

## Data Acquisition Features

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|---|---|
| **Accepts LVCMOS/ LVTTL signals** | · Compatible with internal camera signaling |
| **Integrated acquisition engine** | · Can acquire images from a wide variety of sources, with pixel depths up to 24 bits, color or B/W, and multi-tap at up to 90 MHz |
| **Free running or externally triggered** | · Flexible acquisition modes |
| **Static configuration** | · Configuration settings are saved to on-board Flash memory |

## Ordering Information

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|---|---|
| **904-3000** | · iPORT™ NTx-Mini Embedded Video Interface main board with vertical RJ45 jack. |
| **904-3001** | · iPORT™ NTx-Mini Embedded Video Interface board set with vertical RJ45 jack including 904-3000 and AdaptRBoard. |
| **904-3002** | · iPORT™ NTx-Mini Embedded Video Interface in-camera set with vertical RJ45 jack including 904-3001 and FlexEBoard. **Note**: The 12-pin circular connector is not included and must be ordered separately, order code 200-0016. |
| **904-3003** | · iPORT™ NTx-Mini Embedded Video Interface Development Kit, which contains 904-3002, prober/ breakout board, power supply, and GigE NIC |
| **904-3200** | · iPORT™ NTx-Mini Embedded Video Interface main board with horizontal RJ45 jack. |
| **904-3201** | · iPORT™ NTx-Mini Embedded Video Interface board set with horizontal RJ45 jack including 904-3200 and AdaptRBoard. |
| **904-3202** | · iPORT™ NTx-Mini Embedded Video Interface in-camera set with horizontal RJ45 jack including 904-3201 and FlexEBoard. **Note**: The 12-pin circular connector is not included and must be ordered separately, order code200-0016. |
| **904-3203** | · iPORT™ NTx-Mini Embedded Video Interface Development kit with horizontal RJ45 jack including 904-3202, prober board, flat flex cables, power supply, Gigabit Ethernet desktop NIC, Ethernet cable, 12-pin circular connector soldered on FlexEBoard, and eBUS SDK USB stick. |