

CoreIPC

ITX-R196

Mini-ITX Multi-LAN Router Motherboard Datasheet

Intel® Bay Trail Platform

Document	Datasheet
Model	ITX-R196
Issue	1.1
Product Type	Mini-ITX Multi-LAN Router Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on ITX-R196 User Manual Issue 1.1.

1. Product Overview

The ITX-R196 is a CoreIPC Mini-ITX router motherboard based on the Intel® Bay Trail-I/M/D platform. It integrates DDR3L memory, VGA display, four or six Intel® Gigabit Ethernet ports, optional LAN bypass, SATA and mSATA storage, Mini PCIe expansion, USB and serial connectivity, GPIO, fanless cooling, and 12 V DC input for software routers, network appliances, industrial control, and other embedded applications.

2. Key Features

- Integrated Intel® Celeron® J1900 2.0 GHz quad-core processor; compatible with Intel® Bay Trail-I/M/D series processors.
- 1 x DDR3L SO-DIMM slot supporting single-channel DDR3L-1333/1600, 1.35 V memory, up to 8 GB.
- 1 x VGA display output driven by integrated Intel® HD Graphics; front VGA connector is optional in the detailed I/O description.
- 4 x Intel® I211/I210 Gigabit Ethernet ports standard, with optional 6-LAN configuration; Wake-on-LAN and PXE supported; two optional bypass pairs.
- Storage includes 1 x SATA 2.0 connector, optional 2.5-inch SATA 2.0 connector, and 1 x full-size mSATA slot. The two SATA 2.0 connector options are mutually exclusive.
- 1 x Mini PCIe slot supports half-size/full-size modules; with four Gigabit RJ45 ports, the source specifies USB-interface Wi-Fi/4G modules only.
- Supports three or four USB ports depending on configuration; includes USB 3.0, USB 2.0, and optional front/onboard USB 2.0 resources.
- 1 x Cisco-standard RS232 is provided externally. An optional onboard COM2 header supports RS232/RS485; the second serial port is configuration-dependent.
- Supports 4-channel GPIO, optional SIM, hardware watchdog, reserved CPU/system fan headers, and AT/ATX power-mode selection.
- Mini-ITX 170 x 170 mm; 12 V DC input; fanless thermal design; detailed specification operating temperature -10°C to 60°C.

3. Technical Specifications

Category	Specification
Processor	Integrated Intel® Celeron® J1900 quad-core processor, 2.0 GHz; compatible with Intel® Bay Trail-I/M/D processors.
Memory	1 x 204-pin SO-DIMM; single-channel DDR3L-1333/1600, 1.35 V; up to 8 GB.
Graphics / Display	Integrated Intel® HD Graphics; 1 x VGA output. Detailed I/O section lists the front VGA connector as optional.
Ethernet	4 x Intel® I211/I210 Gigabit Ethernet standard; optional 6-LAN configuration; Wake-on-LAN and PXE support; two optional bypass pairs.
Storage	1 x SATA 2.0 connector; optional 2.5-inch SATA 2.0 connector mutually exclusive with the standard SATA connector; 1 x full-size mSATA slot.
Expansion	1 x Mini PCIe slot supporting half/full-size cards. With four Gigabit RJ45 ports, source specifies USB-interface Wi-Fi/4G modules only.
USB	3 or 4 USB ports depending on configuration. Detailed I/O includes 1 x USB 3.0, 1 x rear USB 2.0, plus optional front/onboard USB 2.0 resources.
Serial Ports	1 x Cisco-standard RS232 external port. Optional COM2 header supports RS232/RS485; second serial port is configuration-dependent.
SIM	1 x optional SIM card slot.
GPIO	4-channel GPIO input/output.
BIOS	64 Mb Flash ROM.
Watchdog	Hardware reset watchdog, 256 levels (0-255 seconds).
OS Support	Windows 7 / Windows 10 / Linux.
Power	12 V DC input; AT/ATX power-mode selection; onboard 4-pin ATX connector can be used as 12 V input/output.
Operating Temperature	-10°C to 60°C in detailed specifications; Product Description states -20°C to 60°C.
Storage Temperature	-20°C to 70°C.
Operating Humidity	5%-95% RH, non-condensing.
Dimensions	170 mm x 170 mm.

4. I/O Interface Summary

4.1 Rear Panel I/O

Interface	Description
Display	1 x optional VGA front connector; onboard JVGA header carries the same VGA signals.
USB	1 x USB 3.0 + 1 x USB 2.0 rear; 1 x optional front USB 2.0, mutually exclusive with the onboard USB 2.0 header.
LAN	4 x RJ45 Gigabit Ethernet standard; optional 6 x RJ45 configuration.
Serial	1 x Cisco-standard RS232 serial port.
Controls / Power	1 x optional power button; 1 x optional HDD/power indicator; 1 x 12 V DC input.

4.2 Internal I/O and Headers

Interface / Header	Description
VGA	1 x 1 x 12-pin JVGA header carrying the same VGA signals as the DB15 VGA port.
USB 2.0	1 x 2 x 4-pin USB 2.0 header, mutually exclusive with the optional front USB 2.0 port.
Serial / RS485	1 x optional 2 x 5-pin COM2 header; COM2 can be selected as RS232 or RS485. Optional 1 x 4-pin RS485 connector is defined.
LAN LED	1 x 2 x 12-pin LAN LED header covering up to six LAN ports.
GPIO	1 x 2 x 5-pin GPIO header providing four input/output channels.
Storage Power	1 x optional drive power connector, mutually exclusive with the 2.5-inch SATA 2.0 drive connector.
ATX Power	1 x 4-pin ATX connector usable as 12 V power input/output.
Front Panel	1 x 2 x 5-pin front-panel switch and indicator header.
Fan	1 x reserved 4-pin CPU fan header and 1 x reserved 4-pin system fan header.

5. Display Support

ITX-R196 provides VGA display output through integrated Intel® HD Graphics. The source manual also defines an onboard JVGA header carrying the same VGA signals, while the front VGA connector is listed as optional in the detailed I/O section.

Item	Description
Integrated Graphics	Intel® HD Graphics.
VGA	1 x VGA output; detailed specification lists the front connector as optional.
JVGA Header	1 x onboard 1 x 12-pin JVGA connector carrying the same VGA signals.

6. Network and Bypass Features

Network Feature	Description
LAN Controllers	4 x Intel® I211/I210 Gigabit Ethernet standard; optional 6-LAN configuration.
Bypass	Two optional bypass pairs; block diagram identifies LAN1/LAN2 and LAN3/LAN4.
Wake-on-LAN	Supported.
PXE Boot	Supported.

7. Power, Cooling and Reliability Functions

Item	Description
Main Power	12 V DC input.
AT / ATX Mode	AT/ATX power-mode jumper.
ATX Connector	1 x 4-pin connector usable as 12 V input/output.
Cooling	Fanless thermal design; CPU and system fan headers reserved.
Watchdog	Hardware reset watchdog, 256 levels (0-255 seconds).
Clear CMOS	1 x Clear CMOS jumper.

8. Mechanical and Environmental Information

Item	Description
Form Factor	Mini-ITX router motherboard.
Dimensions	170 mm x 170 mm.
Operating Temperature	-10°C to 60°C in detailed specification; Product Description states -20°C to 60°C.
Storage Temperature	-20°C to 70°C.
Operating Humidity	5%-95% RH, non-condensing.
Power Input	12 V DC.

9. Ordering Information

Model	Description
ITX-R196-N42 VER1.1	Celeron® J1900; 4 cores; 2.0 GHz; DDR3L; VGA; 4 LAN; 3 USB; 1 COM / 0 RS485 in Ordering Information; 12 V DC.
ITX-R196-N62 VER1.1	Celeron® J1900; 4 cores; 2.0 GHz; DDR3L; VGA; 6 LAN; 3 USB; 2 COM / 0 RS485 in Ordering Information; 12 V DC.
Bypass Option	Two optional bypass pairs supported.
Storage Option	Optional 2.5-inch SATA 2.0 connector is mutually exclusive with the standard SATA 2.0 connector.

10. Compliance and Documentation Notes

- Certification and compliance information is not specified in the source manual. Contact CoreIPC for project-specific certification or compliance documentation.
- Operating-temperature information differs by section: Product Description states -20°C to 60°C, while the detailed Motherboard Specifications table states -10°C to 60°C. This datasheet uses -10°C to 60°C in the main specification table and flags the discrepancy for confirmation.
- Serial-port and USB counts are configuration-dependent. Product Description states two RS232 ports and three or four USB ports, while Ordering Information lists 1 COM for the 4-LAN model and 2 COM for the 6-LAN model, with 3 USB for both. The detailed specification describes one Cisco RS232 plus an optional COM2/RS485 header and mutually exclusive USB resources.

11. Contact Information

Company	CoreIPC
Sales Team	CoreIPC Sales Team
Email	sales@coreipc.com
Website	https://www.coreipc.com/

Disclaimer: This datasheet was compiled from ITX-R196 User Manual Issue 1.1. Product specifications, interface counts, supported functions and optional configurations may vary by production revision. Please confirm the selected configuration before order placement. All product names, trademarks and registered trademarks are the property of their respective owners.