

CoreIPC

OPS86C

OPS Industrial Motherboard Datasheet

Intel® Haswell-M / HM86-HM87 Platform

Document	Datasheet
Model	OPS86C
Issue	2.0
Product Type	OPS Industrial Motherboard
Website	www.CoreIPC.com

This datasheet is prepared based on OPS86C User Manual Issue 2.0.

1. Product Overview

The OPS86C is a CoreIPC OPS-series industrial motherboard supporting Intel® 4th-generation Haswell-M Pentium®, Celeron®, and Core™ i3/i5/i7 M-series processors. It provides DDR3L memory, VGA/HDMI/DisplayPort video output, Gigabit Ethernet, mSATA and optional SATA storage, Mini PCIe and optional M.2 Key E wireless expansion, multiple USB interfaces, OPS 80-pin system connectivity, and 12-19 V DC input for commercial displays, machine vision, medical equipment, industrial automation, financial equipment, cloud terminals, and related embedded applications.

2. Key Features

- Supports Intel® 4th-generation Haswell FCBGA947 Pentium®, Celeron®, and Core™ i3/i5/i7 M-series processors.
- 1 x SO-DIMM slot supporting DDR3L-1333/1600, 1.35 V memory, up to 16 GB.
- Display interfaces include VGA, HDMI 1.4, and DisplayPort; an additional HDMI interface is available through the OPS 80-pin TX25 connector and I/O expansion board.
- 1 x Realtek RTL8111H Gigabit Ethernet port with Wake-on-LAN and PXE boot support.
- Storage includes 1 x full-size mSATA 3.0 slot and an optional 2.5-inch SATA 3.0 interface.
- 1 x Mini PCIe slot supports Wi-Fi/4G; an M.2 Key E Wi-Fi slot and onboard Wi-Fi module are listed as optional/not populated by default.
- Supports up to 10 USB ports according to the source manual; rear I/O provides 2 x USB 3.0 and 4 x USB 2.0.
- Serial-port information varies by section: Product Description lists 2 x RS232, while Ordering Information lists no COM and the detailed I/O section documents 1 x optional/reserved COM header.
- Onboard ALC662/ALC897 6-channel HD audio supporting MIC and Line-out.
- OPS form factor, 170 x 190 mm; 12-19 V DC input is specified for the external connector; operating temperature -10°C to 60°C.

3. Technical Specifications

Category	Specification
Processor	Intel® 4th-generation Haswell FCBGA947 Pentium®, Celeron®, and Core™ i3/i5/i7 M-series processors.
Chipset	Intel® HM86 or HM87 chipset.
Memory	1 x SO-DIMM; DDR3L-1333/1600, 1.35 V; up to 16 GB.
Graphics / Display	Integrated Intel® HD Graphics; 1 x VGA, 1 x HDMI 1.4, 1 x DisplayPort, plus 1 additional HDMI through the 80-pin TX25 connector / I/O expansion board.
Ethernet	1 x Realtek RTL8111H Gigabit Ethernet controller; Wake-on-LAN and PXE support.
Storage	1 x full-size mSATA 3.0 slot; 1 x optional 2.5-inch SATA 3.0 interface.
Audio	Onboard ALC662/ALC897 6-channel HD audio codec; MIC and Line-out.
Expansion	1 x Mini PCIe slot for Wi-Fi/4G; optional M.2 Key E Wi-Fi slot; optional onboard Wi-Fi module.
USB	Up to 10 USB ports in the source manual. Rear I/O: 2 x USB 3.0 + 4 x USB 2.0; 1 x optional/reserved internal USB 2.0 header.
Serial Ports	Product Description lists 2 x RS232. Detailed I/O documents 1 x optional/reserved COM header. See Documentation Notes.
OPS Connector	1 x 80-pin TX25 connector for OPS system interconnection; carries additional I/O including the second HDMI through an I/O expansion board.
GPIO	4-input / 4-output GPIO.
BIOS	64 Mb Flash ROM.
Watchdog	Hardware watchdog timer, 256 levels (0-255 seconds).
OS Support	Windows 7 / Windows 10 / Linux.
Power	External connector specified as 12-19 V DC; detailed Power Type row states 12 V DC.
Dimensions	170 mm x 190 mm.
Environment	Operating: -10°C to 60°C; Storage: -20°C to 70°C; Humidity: 5%-95% RH, non-condensing.

4. I/O Interface Summary

4.1 Rear Panel I/O

Interface	Description
Display	1 x VGA; 1 x HDMI 1.4; 1 x DisplayPort.
USB	2 x USB 3.0; 4 x USB 2.0.
LAN	1 x RJ45 Gigabit Ethernet.
Audio / Controls	1 x Line-out, 1 x MIC, 1 x Power button, 1 x one-key recovery button, 1 x HDD/Power LED.
OPS / Power	1 x 80-pin TX25 OPS connector; 1 x 12-19 V DC input; optional/reserved ATX 2 x 2-pin connector.

4.2 Internal I/O and Headers

Interface / Header	Description
USB 2.0	1 x 2 x 5-pin USB 2.0 header, optional/reserved.
VGA	1 x 1 x 12-pin JVGA header, optional/reserved; carries the same signal as VGA1.
Serial	1 x 2 x 5-pin COM header, optional/reserved.
Front Panel	1 x 2 x 5-pin front-panel header.
Fan	1 x 4-pin CPU fan header.
GPIO	1 x 2 x 5-pin GPIO header supporting 4 inputs and 4 outputs.
Wireless	Optional onboard Wi-Fi module and optional M.2 Key E Wi-Fi slot; confirm before ordering.

5. Display Support

OPS86C provides VGA, HDMI 1.4, and DisplayPort outputs. The detailed specification also lists a second HDMI interface available through the 80-pin TX25 OPS connector when used with the corresponding I/O expansion board. The source manual specifies synchronous/asynchronous VGA and HDMI dual-display operation.

Item	Description
Integrated Graphics	Intel® HD Graphics.
VGA	1 x VGA display output.
HDMI	1 x HDMI 1.4 rear output; 1 x additional HDMI available through the 80-pin TX25 connector / I/O expansion board.
DisplayPort	1 x DisplayPort output.
Multi-display	Source manual specifies synchronous/asynchronous VGA and HDMI dual-display operation.

6. Serial Port Configuration

Port / Source	Default / Optional Function
Ordering Information	COM/485 field is shown as '/'.
Product Description	Lists 2 x RS232 serial ports.
Detailed I/O	1 x optional/reserved 2 x 5-pin COM header is documented.
Pin Definitions	COM1 standard RS232 pin definition is provided.

7. Power, Cooling and Reliability Functions

Item	Description
External Power	12-19 V DC input according to Ordering Information and front-I/O specification.
Detailed Power Type	12 V DC input is stated in the detailed specification table.
ATX Header	1 x optional/reserved ATX 2 x 2-pin connector.
Cooling	1 x 4-pin CPU fan header.
Watchdog	Hardware watchdog timer, 256 levels (0-255 seconds).
Clear CMOS	1 x 1 x 3-pin JBAT1 Clear CMOS jumper.

8. Mechanical and Environmental Information

Item	Description
Form Factor	OPS industrial motherboard.
Dimensions	170 mm x 190 mm.
Operating Temperature	-10°C to 60°C.
Storage Temperature	-20°C to 70°C.
Operating Humidity	5%-95% RH, non-condensing.
OPS Connection	80-pin TX25 connector.

9. Ordering Information

Model	Description
OPS86C Issue 2.0	HM86; DDR3; HDMI + VGA + DP; 1 LAN; 10 USB; no PS/2 or LPT listed; COM/485 shown as '/'; 12-19 V.
Chipset Option	Detailed specification supports Intel® HM86 or HM87.
Storage Option	2.5-inch SATA 3.0 interface is optional/not installed by default; full-size mSATA 3.0 is listed.
Wireless Option	Optional onboard Wi-Fi and optional M.2 Key E Wi-Fi slot; Mini PCIe supports Wi-Fi/4G.

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.
- Memory information is inconsistent in the source manual: the product and detailed specifications state DDR3/DDR3L-1333/1600 up to 16 GB, while the Memory Installation section states a 260-pin DDR4 SO-DIMM slot. This datasheet follows the detailed motherboard specification and recommends confirming the production BOM before ordering.
- Power and serial-port descriptions vary by section. Ordering Information and the front I/O description specify 12-19 V input, while the detailed Power Type row states 12 V DC. Product Description lists 2 x RS232, Ordering Information lists no COM, and the detailed section documents one optional/reserved COM header. Confirm the required power-input and serial configuration before ordering.

11. Contact Information

Company	CoreIPC
Sales Team	CoreIPC Sales Team
Email	sales@coreipc.com
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Disclaimer: This datasheet was compiled from OPS86C User Manual Issue 2.0. Product specifications, interface counts, supported functions and optional configurations may vary by production version. Please confirm the selected configuration before order placement. All product names, trademarks and registered trademarks are the property of their respective owners.