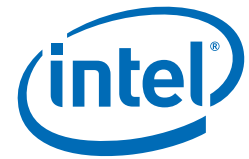


Product Brief

Intel® EP80579 Integrated Processor

Embedded Computing



Intel® EP80579 Integrated Processor for Embedded Computing

Complete System-on-a-Chip for Communications, Storage and Embedded Designs

Based on Intel® architecture, the Intel® EP80579 Integrated Processor is among the first in a series of breakthrough system-on-a-chip (SOC) processors, delivering excellent performance-per-watt for small form factor designs in communications, storage and embedded applications. This fully pin-compatible product line also includes the Intel EP80579 Integrated Processor with Intel® QuickAssist Technology.

This SOC processor delivers a significant leap in architectural design, with an outstanding combination of performance, power efficiency, footprint savings and cost-effectiveness compared to discrete, multi-chip solutions. Featuring embedded lifecycle support, it is ideal for a wide range of applications such as small-to-medium business (SMB) and enterprise communications equipment, retail and transaction terminals, print and imaging applications, access applications, SMB and home network attached storage, and industrial automation applications.

This single-chip design includes an Intel architecture complex based on the Intel® Pentium® M processor, integrated memory controller hub, integrated I/O controller hub, and flexible integrated I/O support with three Ethernet MACs, two Controller Area Network (CAN) interfaces and a local expansion bus interface.

The Intel EP80579 Integrated Processor includes multiple product offerings with a range of core speeds and thermal design power¹ (TDP), along with an industrial temperature option ideal for communications and industrial automation solutions in unconstrained thermal environments. The processor is software-compatible with previous members of the Intel® microprocessor family, enabling smooth migration for current x86 developments.



Flexible Design Options

The Intel EP80579 Integrated Processor is available in a 1,088-ball Flip Chip BGA package and includes a wide range of integrated I/O for flexible design options:

- Three 10/100/1000 Ethernet MACs supporting RGMII or RMII and Management Data Input/Output (MDIO)
- PCI Express* root complex interface in 1x8, 2x4 or 2x1 configurations
- Two USB (1.1 or 2.0) interfaces
- Two SATA (Gen1 or Gen2) interfaces
- 36 General Purpose I/O (GPIO) ports
- Two CAN 2.0b interfaces
- One synchronous serial port (SSP)
- One local expansion bus for general control or expanded peripheral connections
- Two 16550-compatible UARTs
- Two System Management Bus (SMBus)/I²C interfaces
- One Low Pin Count (LPC 1.1) interface
- One Serial Peripheral Interface (SPI) boot interface

Features

Benefits

Intel® architecture compatibility	<ul style="list-style-type: none">▪ Easy migration for existing x86 applications▪ Fully compatible with existing Intel® architecture-based software
Power-optimized circuitry	<ul style="list-style-type: none">▪ Multiple frequency/voltage operating points▪ I/O and logic configurations can be powered down for lower power development options▪ Duty cycle configuration management provides reduced switching power▪ Supports S3 (suspend to RAM) for power-efficient sleep modes
Integrated real-time clock (RTC) support	<ul style="list-style-type: none">▪ Real-time application and operating system synchronization
DDR2 memory options	<ul style="list-style-type: none">▪ DDR2 memory controller supports DIMM or memory down with optional 32-/64-bit and ECC configurations▪ Wide range of memory options from high-performance to power-efficient and cost-effective design configurations
IEEE 1588* time synchronization hardware assist	<ul style="list-style-type: none">▪ Real-time network clock synchronization on two Ethernet MACs and CAN interfaces
-40 to 85° C industrial temperature option (600 MHz SKU)	<ul style="list-style-type: none">▪ Supports communications and industrial automation solutions in unconstrained thermal environments
Enhanced DMA (EDMA) engine	<ul style="list-style-type: none">▪ Low latency memory transfers▪ Support for multiple peer-to-peer configurations
Pin-compatible with Intel® EP80579 Integrated Processor with Intel® QuickAssist Technology	<ul style="list-style-type: none">▪ Design scalability and feature upgrade simplicity
Embedded lifecycle support	<ul style="list-style-type: none">▪ Protects system investment by enabling extended product availability for embedded customers
Ecosystem support	<ul style="list-style-type: none">▪ Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Embedded and Communications Alliance, Intel helps to cost-effectively meet development challenges and speed time-to-market

Software Overview

The Intel® EP80579 Software Drivers for Embedded Applications package contains all software drivers necessary to utilize the hardware functionality of the Intel EP80579 Integrated Processor. For the most recent software package updates from Intel, please visit: downloadcenter.intel.com

The following operating systems are supported on the Intel EP80579 Integrated Processor:

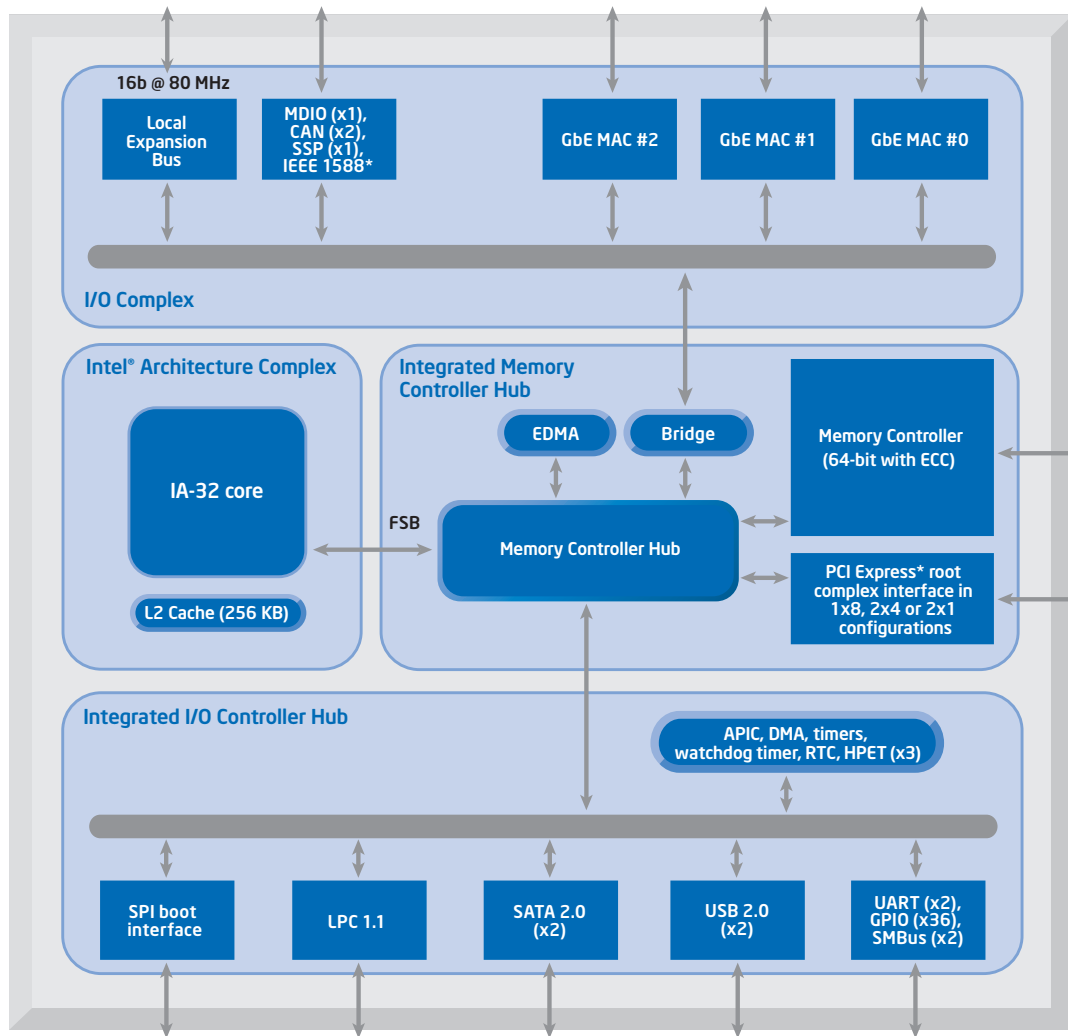
- Microsoft Windows XP* Embedded SP2
- Red Hat Enterprise Linux* 5
- CentOS* 5.2
- Wind River Linux 2.0
- Wind River VxWorks* 6.6
- FreeBSD* 6.3

The following BIOS vendors also support the processor:

- American Megatrends Inc. (AMI)
- Insyde Software Corp.
- Phoenix Technologies, Ltd.

Contact your preferred vendor or an Intel representative for operating system and BIOS options. Or contact a member of the Intel® Embedded and Communications Alliance for application support (intel.com/go/eca).

Block Diagram for the Intel® EP80579 Integrated Processor



Intel® EP80579 Integrated Processor for Embedded Computing

Product Number	Core Speed	DDR 2 Memory (MHz)	Temperature Range	L2 Data Coherent Cache	Thermal Design Power ¹ (estimated)
NU80579EZ600C	600 MHz	400/533/667	Commercial 0 to 70° C	256 KB	11 W
NU80579EZ600CT	600 MHz	400/533/667	Industrial -40 to 85° C	256 KB	11 W
NU80579EZ004C	1.066 GHz	400/533/667/800	Commercial 0 to 70° C	256 KB	18 W
NU80579EZ009C	1.2 GHz	400/533/667/800	Commercial 0 to 70° C	256 KB	19 W

Intel in Embedded and Communications: Intel.com/go/embedded

¹ TDP specification should be used to design processor thermal solutions. TDP is not the maximum theoretical power the processor can generate.

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