

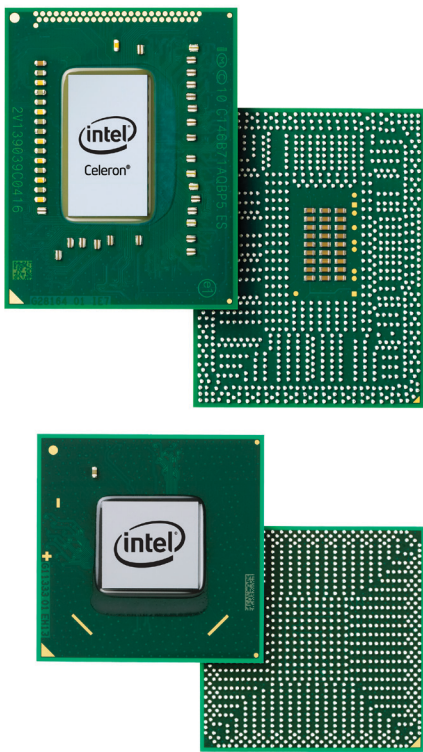
## PLATFORM BRIEF

Intel® Celeron® Processors with Mobile Intel®  
QM77 and HM76 Express Chipsets  
Intelligent Systems



# Intel® Celeron® Processor (1020E, 1047UE, 927UE)-Based Platforms for Intelligent Systems

Ideal for Intelligent Systems—context-aware, securely managed embedded devices that connect seamlessly to networks, clouds and each other.



## Product Overview

Based on 3rd generation Intel® Core™ microarchitecture on 22nm process technology, these Intel® Celeron® processors feature enhanced power efficiency and graphics with new levels of performance for embedded applications. When paired with the Mobile Intel® QM77 Express or Mobile Intel® HM76 Express chipset, these two-chip platforms provide excellent media, graphics, and I/O flexibility to meet the requirements of a broad range of embedded applications, including retail and transaction solutions, signage, gaming platforms, industrial automation, and medical equipment.

Dual- and single-core processing capabilities, with 17W and 35W thermal design power (TDP), deliver excellent performance and value. While incorporating advanced technology, these processors remain software-compatible with previous IA-32 processors.

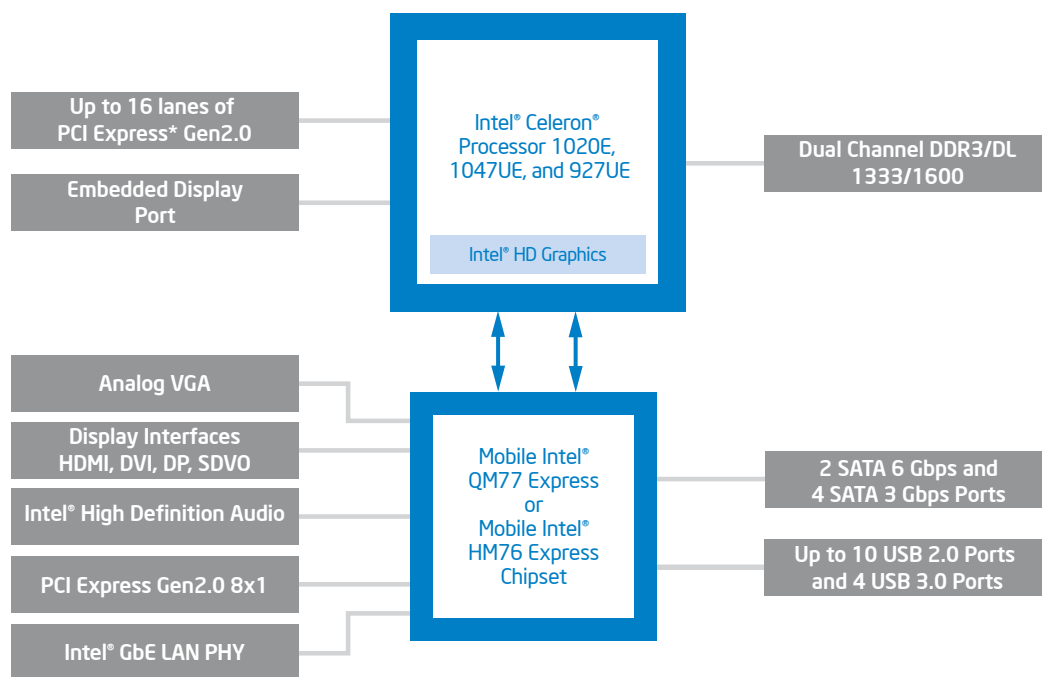
Next-generation Intel® HD Graphics provide improved graphics performance compared with previous Intel Celeron processor-based platforms. Full integration of the CPU, media/graphics capabilities and memory controller helps reduce overall platform footprint and provides faster performance as well as board real estate savings.

## Product Highlights

**Intel® HD Graphics:** Supports enhanced media/graphics capabilities and performance while reducing overall platform power requirements and footprint.

**Intel® Intelligent Power Technology<sup>1</sup>:** Reduces idle power consumption through architectural improvements such as integrated power gates and automated low-power states.

**Intel® Virtualization Technology<sup>2</sup> (Intel® VT):** Combined with software-based virtualization solutions, Intel VT provides maximum system utilization by consolidating multiple environments into a single embedded system.



## Software Overview

The following independent operating system and BIOS vendors provide support for this platform.

### OPERATING SYSTEM

Microsoft Windows\* 8  
 Microsoft Windows\* 7  
 Microsoft Windows\* XP SP3  
 Microsoft Windows Embedded Standard 7  
 Microsoft Windows Embedded Standard 2009  
 Microsoft Windows Embedded POSReady (WEPOS)  
 Red Hat Enterprise Linux\* 6.1  
 SUSE SLE\* 11 SP1  
 Wind River Linux\* 3.0  
 Wind River VxWorks\* 6.8

### CONTACT

Intel provides drivers<sup>3</sup>  
 Intel provides drivers<sup>3</sup>  
 Intel provides drivers<sup>3</sup>  
 Intel provides drivers<sup>3</sup>  
 Intel provides drivers<sup>3</sup>  
 Intel provides drivers<sup>3</sup>  
 Red Hat  
 Novell  
 Wind River  
 Wind River

### BIOS

American Megatrends  
 Insyde Software  
 Phoenix Technologies  
 Byosoft

## Platform Features and Benefits

| FEATURES   | BENEFITS  |
|--|---|
| Supports key embedded platform requirements      | <b>Ideal for compute-intensive embedded applications.</b>   |
| Extended life cycle product support              | Protects system investment by enabling extended product availability for embedded customers.  |
| Intelligent Systems ecosystem support            | Along with a strong ecosystem of hardware and software vendors, including members of the Intelligent Systems Alliance ( <a href="https://www.intel.com/go/intelligentsystems-alliance">intel.com/go/intelligentsystems-alliance</a> ), Intel helps to cost-effectively meet development challenges and speed time-to-market.  |
| Intelligent performance                          | <b>Delivers optimum efficiency by adapting performance to embedded application needs.</b>   |
| Intel® Smart Cache Technology                    | Large on-die shared last-level cache reduces latency to data, improving performance and power efficiency.   |
| Intel® Intelligent Power Technology <sup>1</sup> | Automated energy efficiency reduces power consumption.  |
| Integrated power gates                           | Reduces idle processor cores to near zero power when not in use to help conserve power and lower operating costs.   |
| Automated low-power states                       | Adjusts system power consumption based on real-time processor loads.  |
| Virtualization                                   | <b>Increases performance of virtual computing environments enabling more robust embedded applications.</b>  |
| Intel® Virtualization Technology <sup>2</sup>    | Speeds the transfer of platform control and movement of data between the virtual machine monitor (VMM) and other platform agents (including guest operating systems and I/O devices). By lowering the workload on the VMM, this technology addresses many embedded system design challenges, like migrating legacy software, increasing real-time performance, and making applications more secure. |

## Intel® Celeron® Processors for Embedded Computing

| PRODUCT NAME <sup>A</sup>        | CORES | CORE FREQUENCY | INTEL® SMART CACHE | THERMAL DESIGN POWER | PACKAGE    | ERROR CORRECTING CODE | INTEL® VIRTUALIZATION TECHNOLOGY |
|----------------------------------|-------|----------------|--------------------|----------------------|------------|-----------------------|----------------------------------|
| Intel® Celeron® Processor 1020E  | 2     | 2.2 GHz        | 2 MB               | 35 W                 | FCPGA 988  | No                    | Yes                              |
| Intel® Celeron® Processor 1020E  | 2     | 2.2 GHz        | 2 MB               | 35 W                 | FCBGA 1023 | Yes                   | Yes                              |
| Intel® Celeron® Processor 1047UE | 2     | 1.4 GHz        | 2 MB               | 17 W                 | FCBGA 1023 | Yes                   | Yes                              |
| Intel® Celeron® Processor 927UE  | 1     | 1.5 GHz        | 1 MB               | 17 W                 | FCBGA 1023 | Yes                   | Yes                              |

## Mobile Intel® QM77 Express and Mobile Intel® HM76 Express Chipsets for Embedded Computing

| PRODUCT                                 | PRODUCT CODE | PACKAGE   | FEATURES   |
|---|--------------|-----------|--|
| Intel® BD82QM77 Platform Controller Hub | BD82QM77     | FCBGA 989 | 4 SATA 3.0 Gb/s ports, 2 SATA 6.0 Gb/s ports; 8 PCI Express I/O ports; 10 USB 2.0 ports, 4 USB 3.0 ports |
| Intel® BD82HM76 Platform Controller Hub | BD82HM76     | FCBGA 989 | 4 SATA 3.0 Gb/s ports, 2 SATA 6.0 Gb/s ports; 8 PCI Express I/O ports; 8 USB 2.0 ports, 4 USB 3.0 ports  |

Intel in Intelligent Systems: [intel.com/intelligentsystems](http://intel.com/intelligentsystems)

<sup>Δ</sup> Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See [www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number) for details.

<sup>1</sup> Intel® Intelligent Power Technology requires a computer system with an enabled Intel® processor, chipset, BIOS and for some features, an operating system enabled for it. Functionality or other benefits may vary depending on hardware implementation and may require a BIOS and/or operating system update. Please check with your system vendor for details.

<sup>2</sup> Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM). Functionality, performance or other benefits will vary depending on hardware and software configurations. Software applications may not be compatible with all operating systems. Consult your PC manufacturer. For more information, visit <http://www.intel.com/go/virtualization>.

<sup>3</sup> Drivers available at: [downloadcenter.intel.com](http://downloadcenter.intel.com) (enter chipset name).

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