



## E6xx Series (Tunnel Creek)

Intel® Atom™-Based Low-Power Embedded Processors

The Intel® Atom™ processor E6xx series is the next-generation Intel® Architecture (IA) CPU for the small form factor low-power embedded applications, based on a new architecture partitioning. It integrates the 3D graphics engine, memory controller and other blocks with the IA CPU core.

The processor departs from the Intel proprietary chipset interfaces to an open-standard industry-proven PCI Express™ v1.0 interface, that allows it to be paired with customer-defined IO Hub (IOH), ASIC, FPGA, and off-the-shelf discrete components.

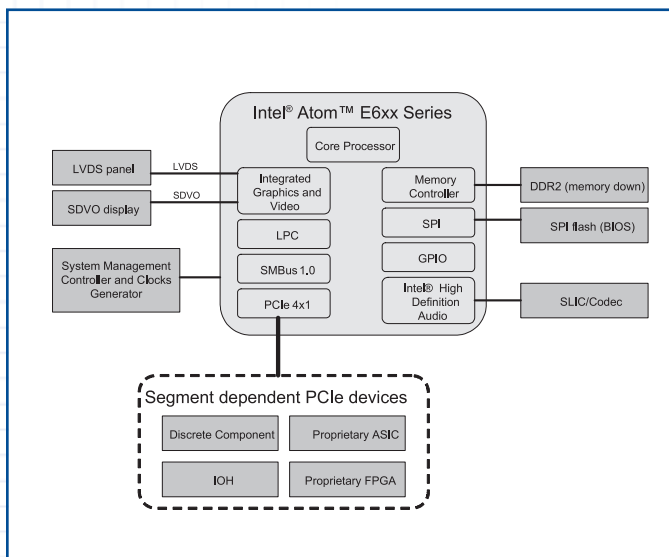
### Applications

- Point-of-sale
- Factory/home automation
- Medical portable
- Digital signage
- Industrial PC
- IP media phones
- In-vehicle infotainment
- Robotics

### Features

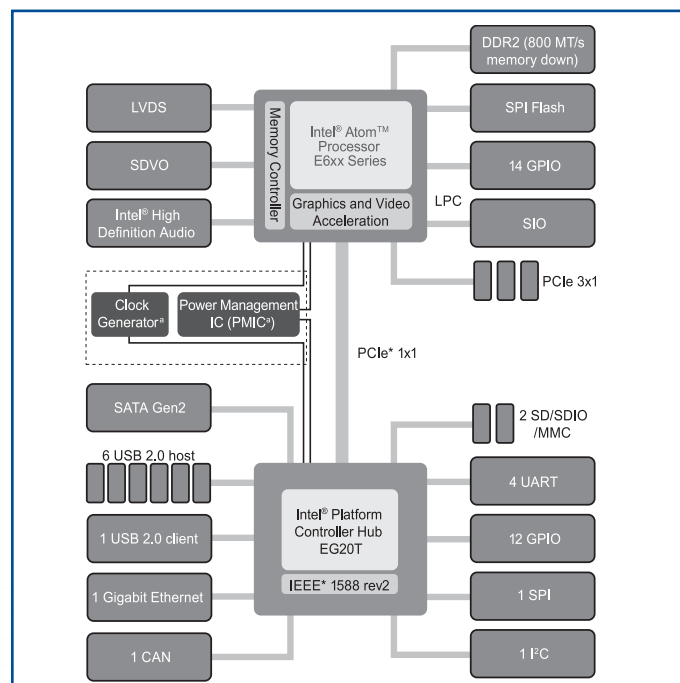
- CPU core (Bonnell)
  - 0.6 GHz to 1.6 GHz CPU core
  - 45 nm high K process
  - Enhanced Intel® SpeedStep™
  - Intel® Hyper-Threading and Intel® Virtualization (VT-x) technologies enabled

### Processor Block Diagram



- L2 cache
  - 24 kB data cache, 32 kB instruction L1 cache
  - 512 kB L2 cache
- Video engine
  - H/W accelerated video encode and decode
  - Encode: MPEG4, H.264
  - Decode: MPEG2, MPEG4, VC1, WMV9, H.264
- Memory support
  - DDR2 800 MT/s
  - Eight devices up to 2 GB
  - 32-bit, single channel
  - Memory down only
- Integrated graphics
  - Up to 400 MHz
  - Supports OpenGL ES2.0, OpenVG 1.1
- Dual display
  - 18-/24-bit single channel LVDS and SDVO
- PCI Express
  - Four ports, each x1 only
  - Interface to IOH or any PCIe™ devices
- 676-ball FCBGA package (22 mm x 22 mm)

### System Block Diagram



<sup>a</sup> The PMIC and Clock Generator products are available from third parties. An integrated PMIC and Clock Generator (on a single chip) is also available from a third party.

## Intel® Atom™ Processor E6xx Series for Embedded Computing

Product Name	Product Number	Clock Speed (GHz)	Graphics Speed (MHz)	Thermal Design Power <sup>(1)</sup>	T <sub>junctionMax</sub>	Temperature Range
Intel® Atom™ processor E620	CT80618005844AA	0.6	320	2.7 W	110 °C	Commercial 0 °C to +70 °C
Intel® Atom™ processor E620T	CT80618005844AB	0.6	320	2.7 W	110 °C	Industrial -40 °C to +85 °C
Intel® Atom™ processor E640	CT80618005841AA	1.0	320	3.3 W	110 °C	Commercial 0 °C to +70 °C
Intel® Atom™ processor E640T	CT80618005841AB	1.0	320	3.3 W	110 °C	Industrial -40 °C to +85 °C
Intel® Atom™ processor E660	CT80618003201AA	1.3	400	3.3 W	110 °C	Commercial 0 °C to +70 °C
Intel® Atom™ processor E660T	CT80618003201AB	1.3	400	3.3 W	110 °C	Industrial -40 °C to +85 °C
Intel® Atom™ processor E680	CT80618007035AA	1.6	400	3.9 W	110 °C	Commercial 0 °C to +70 °C
Intel® Atom™ processor E680T	CT80618007035AB	1.6	400	3.9 W	110 °C	Industrial -40 °C to +85 °C

<sup>(1)</sup> TDP values for Intel® Atom™ Processor E6xx Series are pre-silicon estimates.

## Operating System/BIOS Support

	Contact
<b>Operating System</b>	
Microsoft Windows XP SP3	Intel provides drivers
Microsoft Windows Embedded Standard 2009	Intel provides drivers
Microsoft Windows Embedded Standard 7	Intel provides drivers
Microsoft Windows Embedded POS Ready 2009	Intel provides drivers
Microsoft Windows 7	Intel provides drivers
Microsoft Windows Embedded CE 6.0 R3	Adeneo, BSQUARE, Wipro
Fedora Core 11 Linux	Fedora community, Timesys
MeeGo 1.0	MeeGo community, Wind River
QNX Neutrino	QNX Software Systems
Wind River VxWorks	Wind River
<b>BIOS</b>	American Megatrends, Insyde Software, Phoenix Technologies, Byosoft

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