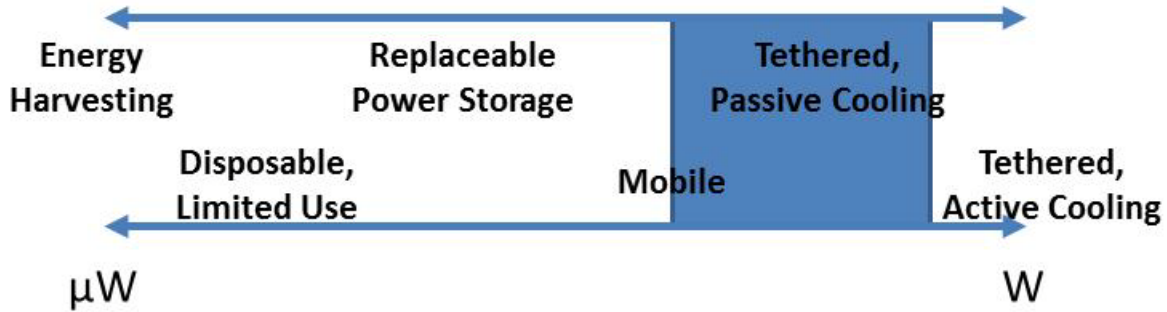


# Low Power Optimization Datasheet for Intel Atom processor

1. The Atom processor targets the shaded portion of the low power spectrum.



2. Operating voltages:

VCC (0.75 - 0.9V)

VNN (0.75 - 1.1V)

3. Typical power at maximum operating frequency and (TDP) Thermal Design Power

E620T, 600 MHz with 2.7W TDP

E640T, 1.0 GHz with 3.6W TDP

E660T, 1.3 GHz with 3.6W TDP

E680T, 1.6 GHz with 3.9W TDP

4. Atom processors include support for clock gating.

5. Atom processors include a deeper sleep state (C6) controlled through standard ACPI calls. Both BIOS and the operating system are involved in using this feature.

6. Atom processors support multiple supply voltages.

7. Enhanced Intel SpeedStep Technology supports both frequency and voltage scaling.

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8. The Atom processor includes the following hardware accelerators:

- Hyper-threading for threaded software
- Intel Virtualization Technology
- Intel Streaming SIMD Extensions (Intel SSE2 and Intel SSE3) and Supplemental Streaming SIMD Extensions 3 (SSSE3)
- Integrated 2D/3D graphics core
- Video decode/encode
- Execute Disable Bit support for security

9. The Atom processor uses Intel Hyper-Threading Technology to support multithreading.

10. The Atom processor uses Intel Virtualization Technology for multicore configurations.

11. Visit the following links to find out more information for:

A. Making your code faster:

- <http://software.intel.com/en-us/articles/intel-ipp/>
- <http://software.intel.com/en-us/articles/intel-mkl/>
- <http://software.intel.com/en-us/articles/serial-parallel-profilers/>

B. Using the hardware accelerators

- Intel Atom Processor Video Encoding Accelerator
  - <http://download.intel.com/design/intarch/PAPERS/324328.pdf>
- Intel Inspector XE 2011 (Formerly Intel Thread Checker)
  - <http://software.intel.com/en-us/articles/intel-inspector-xe/>
- [http://www.intel.com/intelpress/sum\\_ms2a.htm](http://www.intel.com/intelpress/sum_ms2a.htm)
- <http://www.intel.com/technology/atom/index.htm>
- <http://edc.intel.com/Platforms/Atom-E6xx/#hardware>

C. Sleep and idle modes

- <http://www.lesswatts.org/projects/>

D. Optimize the locality of memory

- <http://software.intel.com/en-us/articles/tools-for-memory-checking>

# Low Power Optimization Datasheet for Intel Atom processor

## E. Using buffers and pre-allocated resources

- <http://software.intel.com/en-us/articles/how-to-optimize-prefetch-on-32-bit-intel-architecture>

## F. Optimize data movement

- <http://software.intel.com/en-us/articles/tools-for-memory-checking>
- <http://software.intel.com/en-us/articles/intel-inspector-xe/>

## G. Optimize interrupt handling

- <http://software.intel.com/en-us/articles/performance-insights-to-intel-hyper-threading-technology/>
- <http://software.intel.com/en-us/articles/intel-inspector-xe/>
- PC Programmer's Guide to Low-Level Functions and Interrupts, Marcus Johnson 1994 (ISBN 0672304759)

## H. Manage multi-threading

- <http://software.intel.com/en-us/articles/intel-parallel-building-blocks/>
- <http://software.intel.com/en-us/articles/intel-inspector-xe/>
- <http://software.intel.com/en-us/articles/intel-guide-for-developing-multithreaded-applications/>