AMD Athlon™ 64 X2 Dual-Core Processor for Notebooks Product Data Sheet

- **Compatible with Existing 32-Bit Code Base**
  - Including support for SSE, SSE2, SSE3, MMX™, 3DNow!™ technology, and legacy x86 instructions
  - Runs existing operating systems and drivers
  - Local APIC on the chip
- **AMD64 Technology**
  - AMD64 technology instruction set extensions
  - 64-bit integer registers, 48-bit virtual addresses, 40-bit physical addresses
  - Eight additional 64-bit integer registers (16 total)
  - Eight additional 128-bit SSE registers (16 total)
- **Dual-Core Architecture**
  - Discrete L1 and L2 cache structures for each core
- **Enhanced Virus Protection**
  - No Execute (NX) bit in page-translation tables specifies whether code can be executed from the page
- **HyperTransport™ Technology to I/O Devices**
  - One 16-bit link supporting speeds up to 800 MHz (1600 MT/s) or 3.2 Gbytes/s in each direction
- **64-Kbyte 2-Way Associative ECC-Protected L1 Data Cache**
  - Two 64-bit operations per cycle, 3-cycle latency
- **64-Kbyte 2-Way Associative Parity-Protected L1 Instruction Cache**
  - With advanced branch prediction
- **16-Way Associative ECC-Protected L2 Cache**
  - Exclusive cache architecture—storage in addition to L1 caches
  - Up to 1 Mbyte per L2 cache
  - 1 Mbyte and 512-Kbyte options
- **Machine Check Architecture**
  - Includes hardware scrubbing of major ECC-protected arrays

S1g1 Processor Specific Features

- **Refer to the *S1g1 Processor Functional Data Sheet*, order# 31731, for functional and mechanical details of S1g1 processors. Refer to the *AMD NPT Family 0Fh Processor Electrical Data Sheet*, order# 31119, for electrical details of S1g1 processors.**
- **Packaging**
  - 638-pin lidless micro PGA package
  - 1.27-mm pin pitch
  - 26 x 26 pin grid array
  - 35 mm x 35 mm organic substrate
  - Compliant with RoHS (EU Directive 2002/95/EC) with lead used only in small amounts in specifically exempted applications
- **Integrated Memory Controller**
  - Low-latency, high-bandwidth
  - 128-bit DDR2 SDRAM controller operating at up to 400 MHz
  - Supports up to two unbuffered SO-DIMMs
- **Electrical Interfaces**
  - HyperTransport™ technology: LVDS-like differential, unidirectional
  - DDR2 SDRAM: SSTL_1.8 per JEDEC specification
  - Clock, reset, and test signals also use DDR2 SDRAM-like electrical specifications.
- **Power Management**
  - Multiple low-power states including C1E
  - System Management Mode (SMM)
  - ACPI compliant, including support for processor performance states
  - AMD PowerNow!™ technology is designed to dynamically switch between multiple low-power states based on application performance requirements.

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Revision History

Date	Revision	Description
August 2007	3.01	Initial public release.