The AMD Geode™ LX Processor Family: Design without Compromise
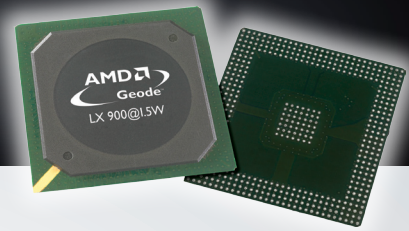
The most performance per watt available in the industry today

AMD Embedded Solutions

Product Overview

The AMD Geode™ LX600@0.7W[1], LX700@0.8W[2], LX800@0.9W[3] and LX900@1.5W[4] processors deliver x86 power and versatility to applications for entertainment, business, education, and embedded markets. The LX900@1.5W processor is the most advanced AMD Geode LX processor for demanding embedded applications. This level of capability may not be needed for every application, but when premium performance is needed, the LX900@1.5W processor delivers. The AMD Geode LX processor's integrated, innovative architecture is one of the most energy-efficient x86 solutions in the industry and can enable small form-factor designs and designs with improved battery life.

Design without Limits

The AMD Geode LX processor family offers new levels of performance and power versatility in an x86-based embedded processor. The newest addition to the AMD Geode LX family, the LX600@0.7W consumes a maximum power of 2.8W (TDP) and 1.2W typically at 366MHz. The LX700@0.8W consumes a maximum power of 3.1W (TDP) and 1.3W typically at 433MHz. The LX800@0.9W processor operates at a maximum power of 3.6W (TDP) and 1.8W is typical at 500MHz. The LX900@1.5W processon operates at a maximum power of 5.1W (TDP) and 2.6W is typical at 600MHz.

| CPU	Frequency	Typical Power	TDP
LX600	366MHz	1.2W	2.8W
LX 700	433MHz	1.3W	3.1W
LX 800	500MHz	1.8W	3.6W
LX 900	600MHz	2.6W	5.1W

The AMD Geode LX processors deliver the low-power x86 performance to design innovative and creative new products without compromise. Coupled with the AMD Geode™ CS5536 companion device, the combined chipset, which operates at 1.8W typical at 366MHz, 2.4W typical at 500MHz, and 3.2W typical at 600MHz, offers designers a complete set of features designed to deliver full desktop functionality to embedded and portable devices.

AMD has also introduced patent pending technology that allows the AMD Geode LX family to use DDR2 memory modules in an existing design. With a minor change in the memory voltage and an updated BIOS, a current AMD Geode LX processor-based design can use a DDR2 memory module from ASint which helps ensure memory longevity and results in a significant system level power savings over the current design.

Capabilities include:

→ Natively run all Windows®- and Linux®- based applications

→ Full Internet browser experience on portable devices

→ No software porting needed – programs run without modification

→ Access to the full universe of 32-bit x86 software

→ Support for any type of connectivity
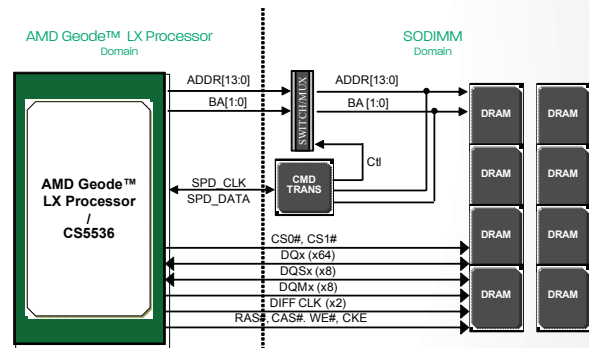
x86 Everywhere: Changing the way developers think about application design

The AMD commitment to the x86 marketplace – with a range of high-performance products like the AMD Geode LX processors – helps give OEMs an easy and effective way to achieve product differentiation and shorten time-to-market cycles. AMD Geode LX processors are the next step in helping AMD redefine the way x86 processors address the growing need for versatile power and performance for a variety of consumer devices. It is the latest example of AMD's commitment to make x86-based technology available for a variety of applications – from high-end servers to low-power embedded applications.

Processor Functional Blocks

→ CPU Core

→ GeodeLink™ Control Processor

→ GeodeLink Interface Units

→ GeodeLink Memory Controller

→ Graphics Processor

→ Display Controller

→ Video Processor

→ Video Input Port

→ GeodeLink PCI® Bridge

→ Security Block
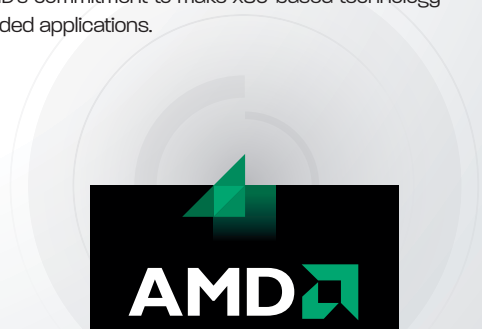
AMD
The future is fusion

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Technical Specifications

→ x86/x87-compatible core

→ Processor Frequency

   – LX900, up to 600MHz

   – LX800, up to 500MHz

   – LX700, up to 433MHz

   – LX600, up to 366 MHz

→ 64K I/64K D L1 cache and 128K L2 cache

→ Split I/D cache/TLB (Translation Look-Aside Buffer)

→ 64-bit DDR Memory interface up to 600MHz (LX900), up to 400MHz (LX800), up to 333MHz (LX700), and up to 366MHz (LX600)

→ Integrated FPU that supports MMX™ and AMD 3DNow!™ technology instruction sets

→ 9 GB/s internal GeodeLink™ Interface Unit (GLIU)

→ Security Block

   – 128-bit AES (CBC/ECB)

   – True Random Number Generator

→ High-resolution CRT and TFT outputs (simultaneous operation)

   – Support for High Definition (HD) and Standard Definition (SD) standards

   – Support 1920x1440 in CRT mode and 1600x1200 in TFT mode

→ VESA 1.1 and 2.0 VIP/VDA support

→ 0.13 micron process

→ 481-terminal PBGA (Plastic Ball Grid Array) with internal heatspreader

Power Management

→ 2.6W Typical (5.1W TDP) @ 600MHz

→ 1.8W Typical (3.9W TDP) @ 500MHz

→ 1.3W Typical (3.1W TDP) @ 433MHz

→ 1.2W Typical (2.8W TDP) @ 366MHz

→ GeodeLink active hardware power management

→ Hardware support for standard ACPI software power management

→ I/O companion SUSP#/SUSPA# power controls

→ Lower power I/O

→ Wakeup on SMI/INTR

→ Optional In-package 2KBit EEPROM

Ordering information

→ OPN: ALXG900EEYJ2VH

   ALXD800EEXJCVC

   ALXD800EEXJCVD

   ALXC700EETHCVC

   ALXC700EETHCVD

   ALXD800EEXJ2VC

   ALXD800EEXJ2VD

   ALXC700EETH2VC

   ALXC700EETH2VD

   ALXC600EETK2VD
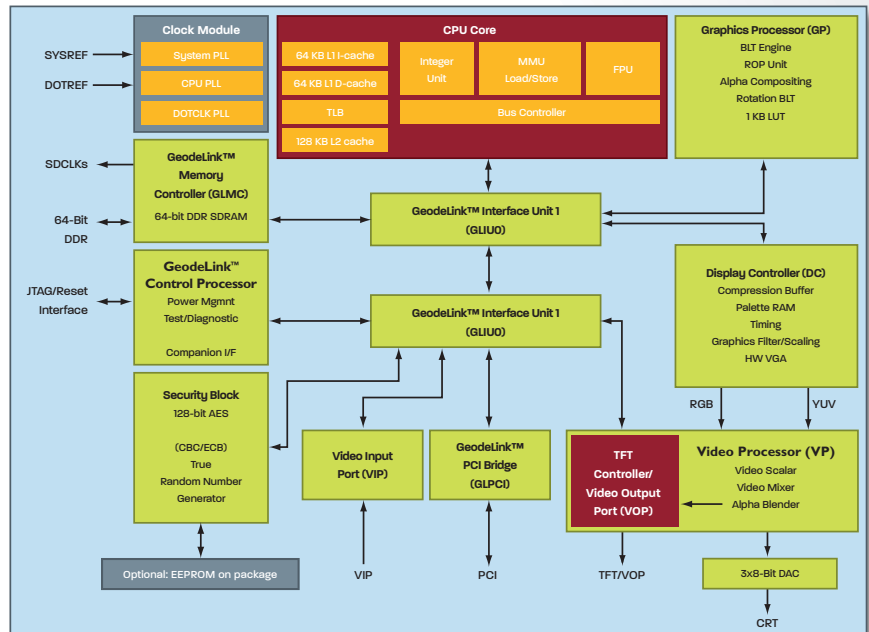
ABOUT AMD

AMD (NYSE:AMD) designs and produces innovative microprocessors and low-power processor solutions for the computer, communications, and consumer electronics industries. AMD is dedicated to delivering standards-based, customer-focused solutions for technology users, ranging from enterprises and governments to individual consumers. **33358F**