AMD Geode™ SC1100/SC1200/SC1201/SC2200/SC3200 Processors Feature Comparison

1.0 Scope

The AMD Geode™ SC1100, SC1200, SC1201, SC2200, and SC3200 processors have been optimized for specific segments in the Information Appliance (IA) space. This technical bulletin describes the IA segment each Geode single chip processor is targeted for and provides a feature comparison.

Note: This is revision 3.1 of this document. The change from revision 3.0 (dated October 2003) is the removal of all references to the SC2100 processor.

2.0 Discussion

While each Geode single chip processor is optimized for a specific IA segment, they are applicable in a much wider range of computer solutions.

SC1100 Processor

- Optimized for high-end set-top box (STB) and general embedded applications:
  — NetTV
  — DSTB (digital)
  — Streaming video client with Video Input Port (VIP)
  — Any embedded system where a display is not required
  — Any high-end application that exceeds the capabilities of the built-in display controller of the other Geode single chip processors

SC1200/SC1201 Processor

- Optimized for set-top box (STB) and enhanced multimedia applications:
  — NetTV
  — DSTB (digital)
  — Streaming video client with Video Input Port (VIP)
  — STB with TV and CRT/TFT interface
  — Macrovision certified (SC1201 only)

SC2200 Processor

- Optimized for thin client applications:
  — CRT-based thin clients
  — WBT (Microsoft® Windows® Based Terminals)
  — Tethered WebPAD™ systems

SC3200 Processor

- Optimized for WebPAD system applications:
  — Smart Displays
  — Wireless WebPAD systems
  — LCD-based thin clients

With the exception of the SC1100, the Geode single chip processors are available in a 432-terminal EBGA (Enhanced Ball Grid Array) or a 481-terminal TEPBGA (Thermally Enhanced Plastic BGA), and incorporate:

- A Geode GX1 processor core (CPU, Memory Controller, Graphics Controller)

- A Video Input Port (VIP)

- A PCI Bridge

- Audio

- An IDE

- A USB

- An LPC

- UARTs

- A Parallel Port

- An ACCESS.bus

- GPIOs

The main difference between the Geode single chip processors is in the supported display interface and the specific multiplexing options available: TV, CRT, and/or TFT/DSTN and a Video Output Port (VOP). Figure 2-1 illustrates which Geode single chip processor should be used based on the desired display interface. Note that the VOP interface is implemented in only the SC1200/SC1201, silicon revision D2 (or above).
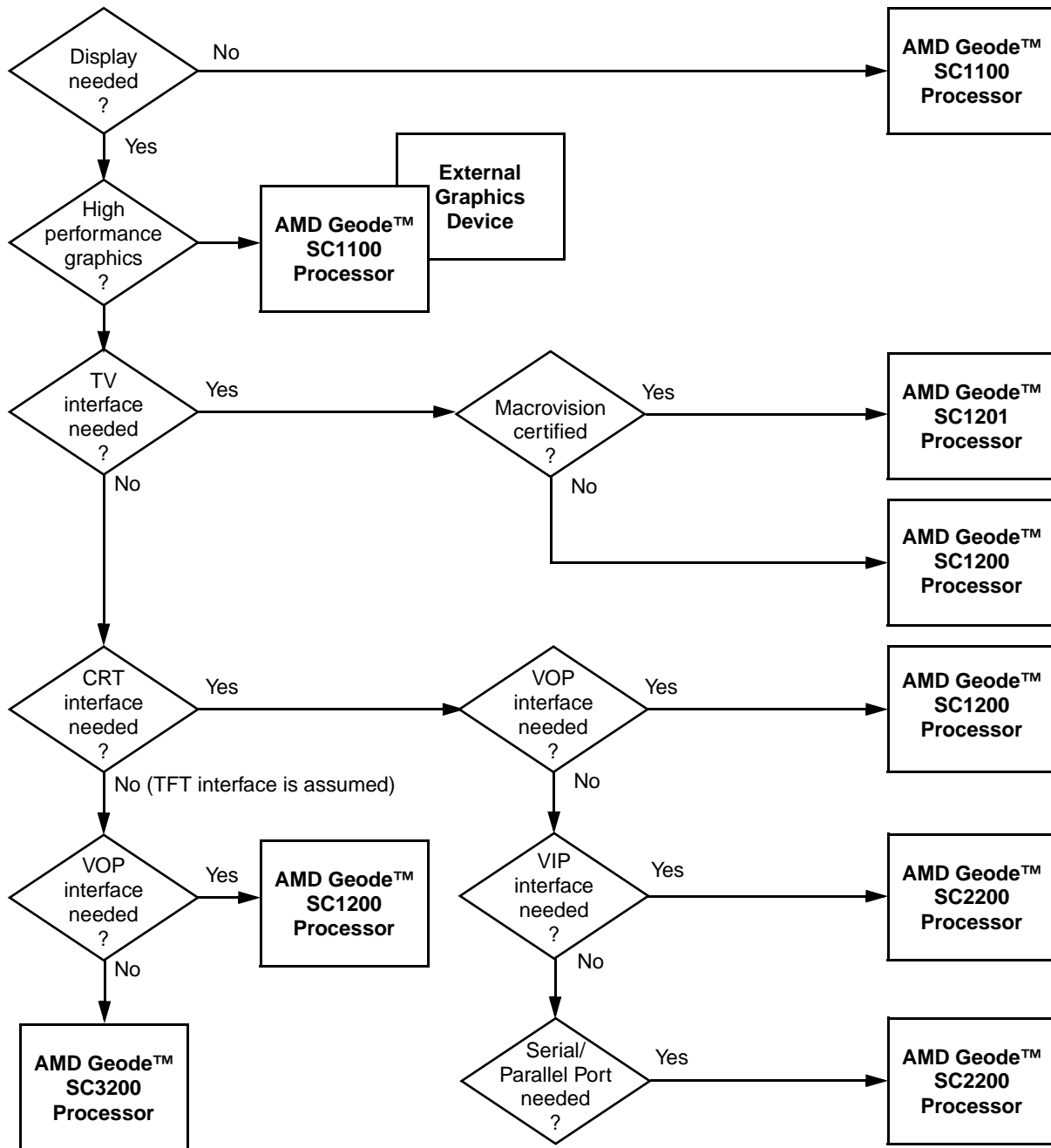
Display needed ? — No → **AMD Geode™ SC1100 Processor**

Yes ↓

High performance graphics ? → **AMD Geode™ SC1100 Processor** / **External Graphics Device**

↓

TV interface needed ? — Yes → Macrovision certified ? — Yes → **AMD Geode™ SC1201 Processor**

Macrovision certified ? — No → **AMD Geode™ SC1200 Processor**

No ↓

CRT interface needed ? — Yes → VOP interface needed ? — Yes → **AMD Geode™ SC1200 Processor**

No (TFT interface is assumed) ↓

VOP interface needed ? — Yes → **AMD Geode™ SC1200 Processor**

VOP interface needed ? — No ↓

VIP interface needed ? — Yes → **AMD Geode™ SC2200 Processor**

VIP interface needed ? — No ↓

AMD Geode™ SC3200 Processor

Serial/Parallel Port needed ? — Yes → **AMD Geode™ SC2200 Processor**

Figure 2-1. Processor Selection Tree

Table 2-1 provides a feature comparison of the Geode single chip processors. Note that due to pin multiplexing, not all features/interfaces listed for each device are available in all configurations. Refer to the appropriate Geode single chip processor data book for further details.

Table 2-1. Feature Comparison

Feature	SC1100	SC1200/SC1201	SC2200	SC3200
GX1 CPU module with: — Intel MMX support — Fully-accelerated 2D graphics — 64-Bit sync DRAM (SDRAM) interface — PCI bus controller — Display controller	Yes Does not include 2D graphics acceleration or display controller	Yes	Yes	Yes
Core Logic module with: — PC/AT functionality — USB interface — IDE interface — PCI bus interface — ACPI 1.0-compliant power management — Video Input Port (VIP) — Audio codec interface	Yes (two IDE channels) IDE Port is a dedicated interface (i.e., not multiplexed) IDE Channel 1 multiplexed with UART1 except for Tx and Rx Does not include VIP	Yes (two IDE channels) IDE Port multiplexed with TFT interface IDE Channel 1 multiplexed with UART2 except for Tx and Rx	Yes (two IDE channels) IDE Port multiplexed with TFT interface IDE Channel 1 multiplexed with UART2 except for Tx and Rx	Yes (two IDE channels) IDE Port multiplexed with TFT interface IDE Channel 1 multiplexed with UART2 except for Tx and Rx
SuperI/O module with: — Three Serial Ports (UART1-3; UART3 has fast IR) — One Parallel Port (PP) — Two ACCESS.bus (ACB) interfaces — One RTC module	Yes One Serial Port (UART1, includes IR support) multiplexed with IDE Channel 1 Two ACCESS.bus (ACB) interfaces One RTC module Does not include Parallel Port	Yes Parallel Port multiplexed with TFT interface and VOP UART2 except for Tx and Rx multiplexed with IDE Channel 1	Yes Parallel Port multiplexed with TFT interface UART2 except for Tx and Rx multiplexed with IDE Channel 1	Yes Parallel Port multiplexed with TFT interface UART2 except for Tx and Rx multiplexed with IDE Channel 1
GPIOs	Up to 30	Up to 27	Up to 27	Up to 27
LPC (Low Pin Count) bus interface Revision 1.0.5	Yes	Yes	Yes	Yes
Macrovision	No	SC1200 = No SC1201 = Yes	No	No
High Resolution Timer	32-bit counter with a 1 µs count interval			
NTSC TV Encoder	No	Yes	No	No
Low-power Video Processor module with: — Hardware Video Accelerator for blending, scaling, filtering, and color space conversion	No	Supports NTSC/PAL, CRT, TFT	Supports CRT, TFT (alpha blending not supported in Video Accelerator due to no TV-out)	Supports TFT only (alpha blending not supported in Video Accelerator due to no TV-out)
VOP (Video Output Port)	No	Yes VOP multiplexed Parallel Port and TFT interface	No	No
Graphic Resolution Support	N/A	Up to 1024x768x16 bpp Up to 1280x1024x8 bpp	Up to 1024x768x16 bpp Up to 1280x1024x8 bpp	Up to 1024x768x16 bpp Up to 1280x1024x8 bpp

Table 2-1. Feature Comparison (Continued)

Feature	SC1100	SC1200/SC1201	SC2200	SC3200
CRT Interface	No	1280x1024 non-interlaced CRT @ 8 bpp, up to 75 Hz 1024x768 non-interlaced CRT @ 16 bpp, up to 85 Hz	1280x1024 non-interlaced CRT @ 8 bpp, up to 75 Hz 1024x768 non-interlaced CRT @ 16 bpp up to 85 Hz	No
TFT Interface	No	Multiplexed with Parallel Port or IDE interface Up to 800x600 non-interlaced TFT @ 16 bpp graphics, up to 85 Hz Up to 1024x768 non-interlaced TFT @ 16 bpp graphics, up to 75 Hz	Multiplexed with Parallel Port or IDE interface Up to 800x600 non-interlaced TFT @ 16 bpp graphics, up to 85 Hz Up to 1024x768 non-interlaced TFT @ 16 bpp graphics, up to 75 Hz	Multiplexed with Parallel Port or IDE interface Up to 800x600 non-interlaced TFT @ 16 bpp graphics, up to 85 Hz Up to 1024x768 non-interlaced TFT @ 16 bpp graphics, up to 75 Hz
DACs	No	Three CRT DACs (up to 135 million pixels per second) Four TV DACs (27 million samples per second)	Three CRT DACs (up to 135 million pixels per second)	No
Package Options: — EBGA (Enhanced Ball Grid Array) — TEPBGA (Thermally Enhanced Plastic Ball Grid Array)	388-terminal TEPBGA	432-terminal EBGA 481-terminal TEPBGA	432-terminal EBGA 481-terminal TEPBGA	432-terminal EBGA 481-terminal TEPBGA