AMD Alchemy™ Solutions and AMD Geode™ Solutions Product Selection Guide

AMD offers a broad range of low-power processors and design tools that help customers to design the right product quickly for their target application. Two processor families are available: the AMD Alchemy™ and AMD Geode™ families:

- AMD Alchemy Solutions are ideally suited for low-power, high-performance applications such as PDAs (Personal Digital Assistants), Web tablets, portable and wired Internet access devices, and gateways.

- AMD Geode Solutions leverage proven mobile technology to give designers a broad range of low-power, high-performance x86 capabilities for designing a variety of applications, including thin-client and peripheral devices – backed by the AMD commitment to long-term support of the x86 marketplace.

Both families of processors are backed by a set of development tools including Reference Design Kits and Development Boards.

- Reference Design Kits (RDKs) are complete reference design solutions that help enable the customer to get from concept to actual product in a short period of time. The RDK is a manufactured product that is available for demonstration and includes all the information required for a customer to recreate the design. As an alternative, the solution is available from a partner for direct purchase. In addition, as part of the kit, documentation is supplied that helps enable the customer to extend the design by adding features from option schematic pages or by making their own design choices for either hardware or software. The RDK is the right place for a customer to begin their design process.

- Development Boards help enable developers to write and test software code and to simulate hardware for their applications. They are highly configurable and allow customers to use all of the features of the processor, either natively on the board or via a plug-in card. While not ideal as a starting point for customer designs, they do allow a customer to begin their software development in parallel with the hardware to reduce the overall time-to-market.

Reference Design Kits

Name	Processor	Companion Device	Form Factor (Inches)	Video Output	OS (Note 1)			I/O Connectors														Typical Kit Contents				
					Windows® XP/XPe	Windows CE 4.2	Linux 2.4.x	Audio Out Channels	USB	PCI Slots	LPC Slots or Headers	Super I/O on Board	Ethernet on Board	Power	Serial ATA	IDE UDMA	Serial Ports	PS/2 Keyboard/Mouse	Parallel Port	IrDA	5.0V to 3.3V PCI Card	TFT Interface Card	LPC Card with Super I/O	PCI Ethernet Card	CD-ROM/Std. Documentation
AMD Alchemy™ Solutions																										
Portable Media Tablet	Au1500™	N/A	10x14x2 (Note 2)	LCD		✓	✓	2	3	1												✓		✓	✓
Mobile Handheld	Au1100™	N/A	5x3x0.5	LCD		✓	✓	1												1		✓			✓
Access Equipment	Au1500™	N/A	7x6x1	CRT		✓	✓		2	1			2				1								✓
AMD Geode™ Solutions																										
GX Thin Client	Geode GX 533@1.1W (Note 3)	AMD CS5535	55x5x12.5	CRT	✓	✓	✓	1	4		1		1	12VDC		✓									✓
GX SOM-144	Geode GX 533@1.1W (Note 3)	AMD CS5535	2.75x4	CRT / TFT	✓	✓	✓																		✓

Note 1. OS support typically includes BIOS and drivers for audio, display, and bootloader if required.
Note 2. The Portable Media Tablet supports the mini PCI form factor only.
Note 3. The Geode GX 533@1.1W processor operates at 400 MHz. Model numbers reflect performance as described here: http://www.amd.com/connectivitysolutions/geodegxbenchmark.

Processors

Processor Family	Device Number	Companion Device(s)	Package/Operating Case Temperature	Core Freq. (Perform. Rating)	Core Volt	Thermal Design Power	Power Management/ Rating	FPU	Memory Support	PCI	Ethernet	IDE	USB	LPC	Audio	UART/IR	Serial/ Parallel Interfaces	RTC	MAX GPIOs	Security	Video: Max Resolution
AMD Alchemy™ Au Processors	Au1550™ (System On Chip)	N/A	LF-PBGA483 0°C to 85°C	500 MHz	1.2V	1.6W	Idle, Sleep, Hibernate	MIPS32™	DDR333/SDR125	v2.2	2 10/100 MAC Controllers	No	2 Ports, v1.1 w/OTG	No	AC97 v2.3	3	SPI, I²S, SMBus, PCMCIA	1 and TOY with Battery Backup	43	IPsec, SSL	PCI Video
				400 MHz		1.5W			DDR400/SDR100												
			LF-PBGA483 0°C to 85°C -40°C to 100°C	333 MHz		1.3W			DDR333/SDR81												
	Au1500™ (System On Chip)	N/A	LF-PBGA424 0°C to 50°C	500 MHz	1.8V	2.5W	Idle, Sleep	MIPS32	SDR125	v2.2	2 10/100 MAC Controllers	No	2 Ports, v1.1	No	AC97 v1.x	2	PCMCIA	2	39	No	PCI Video
			LF-PBGA424 0°C to 70°C	400 MHz	1.5V	1.6W			SDR100												
				333 MHz		1.2W			SDR81												
	Au1200™ (System On Chip)	N/A	LF-PBGA372 0°C to 85°C	500 MHz	1.2V	TBD	Idle0, Idle1, Sleep, Hibernate	MIPS32	DDR400/ DDR2-533	No	No	IDE PIO Mode 4	2 Ports, v2.0 w/OTG	No	AC97 v2.3	2	SPI, I²S, SMBus, PCMCIA, CCIR656	1 and TOY with Battery Backup	48	128-Bit AES	Video Decode, Camera, LCD, TFT and STN
				400 MHz		TBD															
				333 MHz		TBD															
	Au1100™ (System On Chip)	N/A	LF-PBGA399 0°C to 70°C	500 MHz	1.1V to 1.3V	0.9W	Idle, Sleep	MIPS32	SDR125	No	1 10/100 MAC Controller	No	2 Ports, v1.1	No	AC97 v1.x	3	I²S, SSI, IrDA, PCMCIA	2	48	No	LCD, TFT and STN
				400 MHz		0.6W			SDR100												
				333 MHz		0.5W			SDR81												
	Au1000™ (System On Chip)	N/A	LF-PBGA324 0°C to 70°C	500 MHz	1.8V	1.9W	Idle, Sleep	MIPS32	SDR125	No	2 10/100 MAC Controllers	No	2 Ports, v1.1	No	AC97 v1.x	4	I²S, SSI, IrDA, PCMCIA	2	32	No	LCD, TFT and STN
				400 MHz	1.5V	1.2W			SDR100												
			LF-PBGA324 0°C to 70°C -40°C to 85°C	266 MHz		844mW			SDR81												
AMD Geode™ NX Processors (Note 1)	Geode NX 1750@14W (Mobile AMD Athlon™ Processor Technology) (Note 1)	SiS 741CX/963L or 964	OPGA - Socket A 0°C to 95°C	1.4 GHz (1750)	1.05V to 1.25V	25W	ACPI v1.0b/v2.0, AMD PowerNow!™ technology	MMX®, 3DNow!™ technology	DDR333	v2.2/v2.3	1 10/100 MAC Controller	2 Ch., UDMA-133, 2 S-ATA (964)	6/8 Ports, v2.0/1.1	2 LDRQs	AC97 v2.2/v2.3	No	No	1	25	No	CRT: 2048x1536 TFT: 1600x1200
		VIA KN400A/ VT8237					ACPI v2.0, AMD PowerNow! technology			v2.2	1 10/100 MAC Controller	2 Ch., UDMA-133, 2 S-ATA	8 Ports, v2.0/1.1	2 LDRQs	AC97 v2.1	No	No	1	35	No	CRT, TFT: 1600x1200
	Geode NX 1500@6W (Mobile AMD Athlon Processor Technology) (Note 1)	SiS 741CX/963L or 964	OPGA - Socket A 0°C to 95°C	1.0 GHz (1500)	1.0V	9W	ACPI v1.0b/v2.0, AMD PowerNow! technology	MMX, 3DNow! technology	DDR333	v2.2/v2.3	1 10/100 MAC Controller	2 Ch., UDMA-133, 2 S-ATA (964)	6/8 Ports, v2.0/1.1	2 LDRQs	AC97 v2.2/v2.3	No	No	1	25	No	CRT: 2048x1536 TFT: 1600x1200
		VIA KN400A/ VT8237					ACPI v2.0, AMD PowerNow! technology			v2.2	1 10/100 MAC Controller	2 Ch., UDMA-133, 2 S-ATA	8 Ports, v2.0/1.1	2 LDRQs	AC97 v2.1	No	No	1	35	No	CRT, TFT: 1600x1200
	Geode NX 1250@6W (Mobile AMD Athlon Processor Technology) (Note 1)	SiS 741CX/963L or 964	OPGA - Socket A 0°C to 95°C	667 MHz (1250)	1.1V	9W	ACPI v1.0b/v2.0, AMD PowerNow! technology	MMX, 3DNow! technology	DDR333	v2.2/v2.3	1 10/100 MAC Controller	2 Ch., UDMA-133, 2 S-ATA (964)	6/8 Ports, v2.0/1.1	2 LDRQs	AC97 v2.2/v2.3	No	No	1	25	No	CRT: 2048x1536 TFT: 1600x1200
		VIA KN400A/ VT8237					ACPI v2.0, AMD PowerNow! technology			v2.2	1 10/100 MAC Controller	2 Ch., UDMA-133, 2 S-ATA	8 Ports, v2.0/1.1	2 LDRQs	AC97 v2.1	No	No	1	35	No	CRT, TFT: 1600x1200
AMD Geode™ GX Processors (Note 2)	Geode GX 533@1.1W (Integrated North Bridge/Graphics) (Note 2)	AMD CS5535	BGD368 0°C to 85°C	400 MHz (533)	1.5V	<3.5W	ACPI v2.0	MMX, 3DNow! technology	DDR266	v2.2	No	1 Ch., UDMA-66	4 Ports, v1.1	1 LDRQ	AC97 v2.1	2/1	ACCESS.bus w/2 Ports	1	32	No	CRT or TFT: 1600x1200
			BGU396 0°C to 85°C																		CRT, TFT: 1600x1200
	Geode GX 500@1.0W (Integrated North Bridge/Graphics) (Note 2)	AMD CS5535	BGD368 0°C to 85°C	366 MHz (500)	1.5V	<3.5W	ACPI v2.0	MMX, 3DNow! technology	DDR244												CRT or TFT: 1600x1200
			BGU396 0°C to 85°C																		CRT, TFT: 1600x1200
	Geode GX 466@0.9W (Integrated North Bridge/Graphics) (Note 2)	AMD CS5535	BGD368 0°C to 85°C	333 MHz (466)	1.5V	<3.5W	ACPI v2.0	MMX, 3DNow! technology	DDR222												CRT or TFT: 1600x1200
			BGU396 0°C to 85°C																		CRT, TFT: 1600x1200
	Geode GXI (Note 3)	AMD CS5530A	BGD352 0°C to 85°C	333 MHz	2.2V	5.9W	ACPI v1.0	MMX	SDR111	v2.1	No	2 Ch., UDMA-33	2 Ports, v1.0	No	AC97 v2.1	No	No	1	8	No	CRT: 1280x1024
				300 MHz	2.0V	4.8W			SDR100												
				266, 233, 200 MHz	1.8V	4.1W			SDR89												
AMD Geode™ SC Processors	SC1100 (System On Chip)	N/A	BGU388 0°C to 85°C	266 MHz	2.0V	3.3W	ACPI v1.0	MMX	SDR89	v2.1	No	1 Ch., UDMA-33	3 Ports, v1.0	1 LDRQ	AC97 v2.0	1	ACCESS.bus w/2 Ports	1	30	No	N/A
				233 MHz	1.8V	2.7W															
	SC1200/SC1201 (System On Chip)	N/A	BGD432, BGU481 0°C to 85°C	266 MHz	1.8V	3.3W	ACPI v1.0	MMX	SDR100	v2.1	No	2 Ch., UDMA-33	3 Ports, v1.0	1 LDRQ	AC97 v2.0	3/1	ACCESS.bus w/2 Ports, 1 Parallel Port	1	27	No	CRT, TFT: 1280x1024 TV: NTSC/PAL
	SC2200 (System On Chip)	N/A	BGD432, BGU481 0°C to 85°C	300 MHz	2.1V	4.1W	ACPI v1.0	MMX	SDR100	v2.1	No	2 Ch., UDMA-33	3 Ports, v1.0	1 LDRQ	AC97 v2.0	3/1	ACCESS.bus w/2 Ports, 1 Parallel Port	1	27	No	CRT, TFT: 1280x1024
				266 MHz	1.8V	3.1W															
			BGU481 0°C to 85°C	233 MHz	1.8V	2.9W															
	SC3200 (System On Chip)	N/A	BGD432, BGU481 0°C to 85°C	266 MHz	1.8V	3.0W	ACPI v1.0	MMX	SDR100	v2.1	No	2 Ch., UDMA-33	3 Ports, v1.0	1 LDRQ	AC97 v2.0	3/1	ACCESS.bus w/2 Ports	1	27	No	TFT: 1280x1024
			BGU481 0°C to 85°C	233 MHz	1.8V	2.8W															

Note 1. The Geode NX 1750@14W processor operates at 1.4 GHz, the Geode NX 1500@6W processor operates at 1.0 GHz, and the Geode NX 1250@6W processor operates at 667 MHz. Model numbers reflect performance as described here: http://www.amd.com/connectivitysolutions/geodenxbenchmark.
Note 2. The Geode GX 533@1.1W processor operates at 400 MHz, the Geode GX 500@1.0W processor operates at 366 MHz, and the Geode GX 466@0.9W processor operates at 333 MHz. Model numbers reflect performance as described here: http://www.amd.com/connectivitysolutions/geodegxbenchmark.
Note 3. AMD no longer recommends new designs with the Geode GXI processor.

Development Boards

Name	Processor (* Denotes Processor shipped in Kit)	Companion Device	Form Factor (Inches)	Video Output	OS (Note 1)			I/O Connectors														Typical Kit Contents				
					Windows® XP/XPe	Windows CE 4.2 (Note 2)	Linux 2.4.x	Audio Out Channels	USB	PCI Slots	LPC Slots or Headers	Super I/O on Board	Ethernet on Board	Power	Serial ATA	IDE UDMA	Serial Ports	PS/2 Keyboard/Mouse	Parallel Port	IrDA	5.0V to 3.3V PCI Card	TFT Interface Card	LPC Card with Super I/O	PCI Ethernet Card	CD-ROM/Std. Documentation
AMD Alchemy™ Solutions																										
DBAu1550™	Au1550™*	N/A	8.25x6.75	CRT		✓	✓	2	2	2 (Note 3)			2	12VDC		1	2	1								✓
DBAu1500™	Au1500™*	N/A	7.75x6x1	CRT		✓	✓	2	2	1 (Note 3)			2	12VDC		1	2	1								✓
DBAu1200™	Au1200™*	N/A	8.25x6.75	CRT, S-Video, LCD		✓	✓	2	2				1	12VDC		1	2									✓
DBAu1100™	Au1100™*	N/A	8x6x1	CRT		✓	✓	2	1				1	12VDC			2	1		1						✓
DBAu1000™	Au1000™*	N/A	8x6.5x1	CRT		✓	✓	2	2				2	12VDC			2	1								✓
AMD Geode™ Solutions																										
NX DBI500	Geode NX 1750@14W Geode NX 1500@6W Geode NX 1250@6W (Note 4)	VIA KN400A/ VT8237	Mini-TX 6.7x6.7	TFT	✓	✓	✓	6	4	1		1	1	ATX	2	✓	1	1	1	1						✓
GX DB533-C GX DB533-T	Geode GX 533@1.1W Geode GX 500@1.0W Geode GX 466@0.9W (Note 5)	AMD CS5535	SOM-144 Flex ATX 7.5x9	CRT TFT	✓	✓	✓	5	4	3 (Note 6)	1	1	1	ATX		✓	2	1	1			✓				✓
DBSCI200	SCI200*/SCI201 SC2200 SC3200	N/A	ETX/ATX 7x12	CRT, TFT		✓	✓	2	3	4	1	1	1	ATX		✓	2	1	1	1						✓
DBSCI100	SCI100*	N/A	ETX/ATX 7x12	CRT, TFT		✓	✓	2	3	4	1	1	1	ATX		✓	2	1	1	1						✓
SP4SC31 (Note 7)	SCI200*/SCI201 SC2200 SC3200	N/A	ATX 9.6x12	CRT, TFT, TV		✓	✓	2	3	2	1			ATX		✓	2			1	✓	✓	✓	✓	✓	✓
SP4SC40 (Note 7)	SCI100*	N/A	ATX 9.6x12	(Note 8)		✓	✓	2	3	4	1			ATX		✓	1			1	✓	✓	✓	✓	✓	✓
SP4GXI0 (Note 9)	GXI*	AMD CS5530A	ATX 9.6x12	CRT, TFT			✓	2	2	2		1	1	ATX			1	1	1	1	✓	✓				✓

Note 1. OS support typically includes BIOS and drivers for audio, display, and bootloader if required.
Note 2. The DBAu1550,™ DBAu1500,™ DBAu1200,™ DBAu1100,™ and DBAu1000™ also support Windows CE 5.0.
Note 3. The DBAu1550 and DBAu1500 support 3.3V PCI cards only.
Note 4. The Geode NX 1750@14W processor operates at 1.4 GHz, the Geode NX 1500@6W processor operates at 1.0 GHz, and the Geode NX 1250@6W processor operates at 667 MHz. Model numbers reflect performance as described here: http://www.amd.com/connectivitysolutions/geodenxbenchmark.
Note 5. The Geode GX 533@1.1W processor operates at 400 MHz, the Geode GX 500@1.0W processor operates at 366 MHz, and the Geode GX 466@0.9W processor operates at 333 MHz. Model numbers reflect performance as described here: http://www.amd.com/connectivitysolutions/geodegxbenchmark.
Note 6. The Geode GX DB533 has a total of three slots – two at 3.3V and one at 5.0V. Two slots available at 66 MHz or three slots available at 33 MHz.
Note 7. The SP4SC40 and SP4SC31 are no longer available for order and have been replaced by the DBSCI100 and DBSCI200, respectively.
Note 8. Kit includes VGA graphics card on PCI bus.
Note 9. AMD no longer recommends new designs with the GXI processor.

About AMD

AMD (NYSE:AMD) designs and produces innovative microprocessors, Flash memory devices 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.

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