

FEATURE ↓	SOC ¹ ⇒	ZF Micro Solutions ZFx86 PC-on-a-Chip	AMD Élan SC520	AMD Geode LX900 + CS5536 chipset	Intel ATOM Z530 + US15W chipset
CPU Speed		100MHz	133MHz	LX900 600Mhz	1.6GHz
Power Requirement ²		100MHz sub-1W	133MHz 2.0W	LX900 5.1W + CS5536 @ .6W	Z530 2.3W + US15W Chipset 4.3W
L1 Cache		8K	16K	64K	512K
FPU		YES	YES	YES	YES
Total Active Devices Required ³		ZFx86, 1 DRAM, 1 Flash, Clk Gen	SC520, 2 DRAM, 1 Flash	LX800, CS5536, 4 DRAM, 1 Flash, Clk Gen	Z530, US15W, 8 DRAM, Flash, Clk Gen
Fully PC Compatible		YES	NO	YES	YES
DMA Controller		YES	YES	YES	YES
Interrupt Controller		YES	YES	YES	YES
Timer / Counters		(3) 8254 compatible	YES (3)	8254-equivalent	(1) 8254
Z-TAG™ ⁴		YES	NO	NO	NO
ZF-Logic™ ⁵		YES	NO	NO	NO
FailSafe BOOT® ⁶		YES	NO	NO	NO
BIOS license		YES, included & ready-to-run	NO	NO	NO
Linux Image		YES	NO	NO	NO
DR DOS 7.03 license		YES, included	NO	NO	NO
ISA BUS ⁷		YES	NO	NO	NO
PCI BUS ⁶		YES	YES	YES	PCI Express
I²C BUS ⁶		YES	YES	YES	YES
USB		YES 1.1 (2 ports)	NO	YES 2.0 (4 ports)	YES 1.1 & 2.0 (6 ports)
Serial Ports ⁶		YES, 2 (16550)	2 (16550) (1 multiplexed)	NO	NO
Parallel Port ⁶		YES	NO	NO	NO
Floppy Controller ⁶		YES	NO	NO	NO
HDD Interface		YES, EIDE	YES, IDE	YES, ATA-6	YES, PATA
Graphics Controller		NO	NO	NO	NO
Keyboard Controller ⁶		YES ⁴	NO	NO	NO

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Mouse ⁶		YES	NO	NO	NO
IrDA infrared port		YES	NO	YES	NO
DRAM Bus ⁸		16/32 bit	32 bit only	64 bit only	64 bit only
DRAM Controller		SDRAM	SDRAM	DDR	DDR2
Real-Time Clock		YES	YES	YES	YES
GPIO		YES 8	YES 32 (all multiplexed)	YES	YES 14 (not 5V tolerant)
Watchdog Timer		YES (dual H/W-S/W)	YES (dual H/W-S/W)	NO	NO
Pulse Width Modulator		YES (up to 100KHz)	NO	NO	NO
FLASH decode logic		YES - internal	NO - external device required	NO - external device required	NO - external device required
Software Compatibility		Linux, WinCE, Windows 9x, Windows NT, Various DOS & RTOS	Linux, WinCE, Windows 9x, Windows NT, Various DOS & RTOS	Linux, WinCE, Windows 9x, NT, XP, VISTA & Various RTOS	Linux, WinCE, Windows 9x, NT, XP, VISTA & Various RTOS
Standard Temp Rating		100MHz (0 to 70C) Commercial 100MHz (-40 to 85C) Industrial	133MHz (0 to 85C case temperature operating in free air)	0-85C (max case temp)	-40 to 85C
Voltage		2.2 core, 3.3 I/O, 5V tolerant	2.5 core, 3.3 I/O	2.5 core, 3.3 I/O, 5V tolerant	1.1V
Advanced Power Management		YES	YES	YES	YES
Package		388-ball grid array	388-ball grid array	LX = 481 BGA 5536 = 208 BGA	Z530 = 441 FCBGA US15W = 1249 FCBGA
Production Guarantee		YES	NO	NO	YES

¹ Note that neither the AMD LX900 nor the Intel Z530 are true SOC's. They are CPUs that require additional components to perform "computer" functions. The AMD SC520, is more highly integrated but it lacks the ability to BOOT autonomously like the ZFx86.

² Total system power could be significantly higher due to requirement for additional components i.e. Super I/O, memory requirement

³ Total number of active devices required by ZFx86 competitors to boot and run an operating system with ONLY the features shown in the respective column. Additional components are required to match all functions of the ZFx86.

⁴ Z-Tag high-speed serial access allows field or factory software downloads at more than 100 times normal serial speeds.

⁵ ZF-Logic chip select controls ease system integration.

⁶ Fail-Safe Boot® ROM redundant boot mechanism for full recovery even if BIOS and OS are corrupted.

⁷ ISA, PCI, Floppy, Mouse, parallel port, serial ports with no multiplexing allows all devices to be used simultaneously.

⁸ ZFx86 has a selectable memory bus allowing a fully working system with 1, 2, 4, 8 or 16 SDRAM chips – a significant cost advantage over 64-bit bus devices requiring 8 DRAMs to operate.

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