A1200 CPU Card Expansion RAM

by Michael Sinz

When the Amiga OS boots, it automatically notices and utilizes expansion hardware (such as RAM). Prior to the A3000, the only CPU native to any Amiga was the MC68000, which could only address a 24-bit wide address space. As a result, the address space that was available to these machines was only 24 bits wide. CPU expansion products for the MC68000-based Amigas (like the A2630 for the A2000) can utilize address space beyond the 24-bit limit, but the CPU board cannot use the AutoConfig process to add expansion RAM in the address space beyond the 24-bit limit.

Like the MC68000 based Amigas, the Amiga 1200 also has a CPU that only addresses a 24-bit wide address space, the MC68EC020. Also like most of the MC68000 based Amigas, it is possible to add a CPU expansion device. One way the A1200 differs from its 24-bit siblings is the A1200 has set aside a 128 Megabyte range of address space ($0800 0000 through $0FFF FFFF) specifically for such a device (just like the A3000). Any expansion RAM on the A1200's CPU card should appear in this range.

The Release 3 OS in the current A1200 is not smart enough to recognize a 32-bit CPU expansion device vs. a 24-bit expansion device. As a result, the system assumes that the expansion device is a 24-bit expansion device. If a user expands their A1200 with a 32-bit CPU card that has 32-bit expansion memory on it, the OS cannot automatically add the CPU card's expansion memory during the autoconfig process. The CPU card's ROM has to add the memory to the system.

The code to make the A1200 smart enough to recognize a 32-bit CPU card will be in a future ROM revision. This change will allow the OS to automatically notice and add the CPU card's expansion RAM. This makes it possible for the system to add this 32-bit memory to the A1200's system memory relatively early in the boot process. Because the memory is available earlier in the boot process, Exec has the opportunity to use the 32-bit memory for system