NewLife 25 SE Product Description

July 15, 1991

Processors

- 25MHz 68030 with PMMU (memory mapper needed for Virtual)
- 25MHz 68882 FPU

Memory

- takes 1Meg(using 256K SIMMs) or 4 Meg(using 1 Meg SIMMs) on NewLife board. SIMMs must be inserted in four's since the data bus is 32 bit and the SIMMs are 8 bit.
- 1 wait state with 70ns SIMMs or faster, 2 wait states for 80ns to 100ns
- The SIMM sockets cannot be half filled. The NewLife uses a 32 bit data bus and therefore needs four 8 bit SIMMs.
- must use low profile SIMMs (pretty well all new SIMMs are low profile)
- a minimum of 512K must be left on the Mac motherboard for the video circuitry. (the video only uses 32K of this, the rest is used for the RAM disk)
- not compatible with Micron SIMMs.

Requirments

- Functional Mac SE
- four 1Meg SIMMs (100ns or faster)
- minimum of 512K of memory on motherboard
- SE chassis with hole for vertical boards (or special order NL 25 with non-pass through connector.
- room for board (ie no horizontal cards using PDS slot such as video or ether net cards)

Speed

- all system/program memory is on the NewLife, thus all processing is done at the accelerated rate. (the Dove 'accelerators' use the main logic board memory for system/program memory so all memory accesses run at the 68000 rate)
- the sytem ROMs are copied into the accelerator memory (32 bit RAM) so all ROM accesses are accelerated. This is significant as the Mac programming environment uses the ROMs extensively.
- Speedometer benchmarks: CPU - 5.0 to 5.5
  Math (through SANE) - 15 to 20
  Math (direct) - 120 to 130
  Drive - ? (device dependent)

(numbers given are relative to a Mac SE)

Video

- the only video board that we recommend is our own.
- Lapis (Mirror, Mobius, Micro Mac) do not physically fit with our card and need to be modified to work with our boards. The changes can be done (for a hack machine) but it is not something that is commercially viable.
- E-machine cards work without any electrical modifications but again they do not physically fit. These will work in a custom case with four inches of clearance in height.

Ether Net

- the Adaptec Nodem is the only ether net adapter that we have seen working with the NL 25. This is a SCSI type device which plugs into the SCSI port.
- the Novalink ether net adapter is not compatible the the NL 25
- other ether net cards may be compatible but we have not tested them. The main difficulty is that most ether net cards are horizontal and therefore will not physicly fit with our card.

RAM disk

- the NewLife 25 uses the mother board memory as a RAM disk. A RAM disk can be considered as a super fast floppy disk that forgets when you power down. It is used the same as normal disk; the icon appears on the desktop and you can copy files to/from it just like a floppy. If you hit the reset botton (the switch on the side of the Mac) or do a restart, the RAM disk retains its information. But if you power down, all information is lost. It is memory that is pretending to be a disk.
- The RAM disk is useful in places where you are repetatively reading large files. Examples are : sorting and searching in database files, storing library files for compilers, huge spread sheets etc. In these cases, you would copy the files onto the RAM disk and then launch the application.

Virtual Memory

- Virtual memory is 'not real memory'. Hard disk space is used to emulate extra memory. This is slower than real RAM because hard disks are slower and it takes time to swap the information to and from the hard disk. Connectix™ uses intelligent swap routines so it is only a little bit slower.
- Virtual disables the 'Copy ROM to RAM' feature of the NewLife 25
- System 7's virtual will not work on the NewLife 25, to use virtual memory you must use a System 7 compatible third party software package such as Virtual 3.0 by Conectix™

I/O (input/output)

- all I/O is at the motherboard speed since the motherboard is used for these functions
- hard drive interleaves should be set as if the NewLife 25 is not there
- we provide a sound driver but there is still a little bit of distortion in the sound.
- we provide an Appletalk driver so the board works on Appletalk networks. It can also be used as a file server.

Compatibility

- works with the mainstream Mac programs such as Word, Excel, Filemaker II, Macdraw, Superpaint, 4D etc.
- TOPs works
- Performer works if the NewLife sound driver is turned off
- Macromaker is not compatible with the NewLife 25
- System 7 is not yet compatible but will be shortly (sometime)
- Serial hard disks (Mac bottom) are not compatible with the NL 25
- Apple HD20-FD hard drives are not compatible with the NL 25. These are hard disks that connect through the floppy port.
- Hyper-drives (the ones with the internal circuit board) are not compatible.
- not compatible with Micron SIMMs.