NewLife 33 SE Product Description

July 15, 1991

Processors

- 33MHz 68030 with PMMU (memory mapper needed for Virtual)
- 33MHz 68882 FPU

Memory

- takes 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.
- uses 68030 burst mode (grabs memory in chucks of four and loads it into the 68030 on chip cache so by the time the 68030 is finished with the first instruction, the next few are already loaded into the cache and ready for quick execution.)
- average of 1 wait state.
- on board 256K 25ns static 'shadow' RAM. The ROMs are loaded into the static RAM for even faster execution (0 wait state)
- 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.
- not compatible with Micron SIMMs.

Requirments

- Functional Mac SE
- four 1Meg SIMMs (80ns or faster)
- minimum of 512K of memory on motherboard
- SE chassis with hole for vertical boards (or special order NL 33 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 0 wait state 32 bit static RAM so all ROM accesses are accelerated. This is significant as the Mac programming environment uses the ROMs extensively.
- Speedometer benchmarks:
  CPU - 8.5 to 9.0
  Math (through SANE) - 30 to 40
  Math (direct) - 190 to 200
  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 33. This is a SCSI type device which plugs into the SCSI port.
- the Novalink ether net adapter is not compatible the the NL 33
- 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 33 does NOT have a RAM disk.

Virtual Memory

- Virtual by Connectix is included with the NewLife 33
- 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.
- The copy ROM to RAM feature of the NewLife 33 still works with Virtual installed.
- System 7's virtual will not work on the NewLife 33, 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 33 is not there
- The NewLife 33 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 with the NewLife 33
- Macromaker may be compatible with the NewLife 33 (to be tested)
- System 7 is not yet compatible but will be shortly, this is not as critical with the NL 33 as it can be run without software.
- Serial hard disks (Mac bottom) are not compatible with the NL 33
- Apple HD20-FD hard drives are not compatible with the NL 33. 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.