



# Tech Info Library

## AppleShare PC: Memory Solution

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TOPIC -----

Can you recommend a memory expansion card for MS-DOS machines that makes memory available after AppleShare PC 2.0 loads?

DISCUSSION -----

The HiCard from RYBS Electronics is a PC/XT/AT/386 memory card and software that lets MS-DOS machines have more memory available after AppleShare PC 2.0 is loaded. In fact, it leaves as much as 546K on XTs and more on ATs). It is called the HiCard from RYBS Electronics.

There is a HiCard memory cards for PC, XT, AT, 386, and MicroChannel DOS computers. It extends memory but not in the usual fashion. Most memory cards add Extended Memory or Expanded Memory (LIMM), but problems exist, because many DOS applications cannot make use of these types of memory. HiCard adds additional conventional memory, which can be used by most DOS applications, device drivers, and RAM-resident utilities. Software comes with the card to load the device drivers that make the extra memory work. In addition, you can also add AMS (HiMem) memory and Expanded memory.

The product works by taking advantage of the available address space between 640K and 1MB in MS-DOS computers. They state that this area in RAM is usually reserved for ROM BIOS, video adapters, and network cards, and that the RAM space is never completely used. Thus, they can extend usable memory to 736K (total DOS) on a PC, with an additional 256K for AMS memory. RAM-resident utilities and device drivers can be loaded into memory above 736K (AMS memory), thus freeing conventional memory for applications. According to RYBS, you can put BUFFERS, FILES, LASTDRIVE, and other DOS device drivers and TSRs into high memory as well.

Our system consisted of a 640K XT-compatible from CompuAdd and the HiCard board containing 256K RAM running MS-DOS 4.0 and AppleShare PC 2.0.

We loaded AppleShare PC with the desk accessory RAM resident. One AppleShare File Server volume was automatically mounted as the D: drive on the PC. With 640K total RAM, the CHKDSK program showed 655K total memory, and 313K remaining (one other unrelated RAM-resident utility was loaded at startup).

I tried to mount another AppleShare File Server as the E: drive. The Chooser interrupted with the error message, "Not enough memory" and the second volume would not mount.

I installed the HiCard. After running the configuration program, setting DIP switches, and installing the card, a CHKDSK showed 720K available, with 626K free.

I was then able to mount a second file server volume as drive E:, and a third as F: with no problems.

Here's a chart outlining memory use before and after the HiCard was installed:

- Before HiCard:

Normal DOS boot	561K RAM remained available
Boot with AppleShare and the DA in RAM	313K RAM remained available

- After installing HiCard and software:

DOS boot	626K RAM remained available
Boot with AppleShare PC, DA in RAM, and as much as possible in High Memory	546K RAM remained available
Boot with AppleShare PC, DA NOT in RAM, and as much as possible in High Memory	599K RAM remained available

Presumably, this extra memory also could have been used for application space, so I tested it by running Lotus 1-2-3, exiting to the DOS shell, and running WordPerfect. Exiting to the DOS shell left 192K available, and WordPerfect launched fine in this memory.

The manufacturer also claims that their card and software work with Banyan, StarLAN, 3COM, DCA 10Net, IrmaLAN, PCSA, Novell, PC-NFS, TOPS, Token Ring, and other networking cards. We were unable to test the card in these scenarios.

The CompuAdd PC we used for testing did have a few minor compatibility issues. However, the excellent technical support from RYBS helped us to work around the problems.

Here are the hardware and software switches that worked on the CompuAdd PC:

DIP Switches:

All ON except: 1 OFF 5 OFF 7 OFF 8 OFF

Autoexec.bat: (Note: The Moremem line is particular to each machine and configuration):

```
\AMS\MOREMEM -B000 D000-F000
PATH C:\ASPC2;C:\DOS;C:\MAIL;C:\AMS;
\AMS\DEVICE /H C:\DOS\ANSI.SYS /X
@ECHO OFF
SET COMSPEC=C:\DOS\COMMAND.COM
VERIFY OFF
APPEND /E
APPEND C:\DOS
C:\DOS\GRAPHICS
C:\DOS\GRAFTABL 437
VER
KEYB US,,C:\DOS\KEYBOARD.SYS
```

Startup AppleShare PC with DA in memory:

```
cd \aspc2
C:\ASPC2\lsl.COM
\ASPC2\ltalkp /NAME=LTALK$
C:\AMS\LOADHIGH C:\ASPC2\atalk.COM
C:\AMS\LOADHIGH C:\ASPC2\asp_ws.COM
C:\AMS\LOADHIGH C:\ASPC2\pap_ws.COM
C:\AMS\LOADHIGH C:\ASPC2\compat.COM
C:\ASPC2\aprint
c:\AMS\LOADHIGH C:\ASPC2\ashare.COM
\ASPC2\minses.EXE
\ASPC2\redir /S:4
\ASPC2\anet.EXE auto
set path=c:\pm;c:\dos;c:\123;c:\mail;c:\aspc2;
set basspec=c:\dos\basica.com
set pmdir=c:\pm
C:\AMS\LOADHIGH c:\aspc2\da.EXE /r
cd \
```

Startup AppleShare PC without DA in memory:

```
cd \aspc2
C:\ASPC2\lsl.COM
\ASPC2\ltalkp /NAME=LTALK$
C:\AMS\LOADHIGH C:\ASPC2\atalk.COM
C:\AMS\LOADHIGH C:\ASPC2\asp_ws.COM
C:\AMS\LOADHIGH C:\ASPC2\pap_ws.COM
C:\AMS\LOADHIGH C:\ASPC2\compat.COM
C:\AMS\LOADHIGH C:\ASPC2\aprint.COM
c:\AMS\LOADHIGH C:\ASPC2\ashare.COM
\ASPC2\minses.EXE
c:\AMS\LOADHIGH C:\ASPC2\redir.EXE /S:4
```

```
\ASPC2\anet.EXE auto  
set path=c:\pm;c:\dos;c:\123;c:\mail;c:\aspc2;
```

```
set basspec=c:\dos\basica.com  
set pmdir=c:\pm  
C:\AMS\LOADHIGH c:\aspc2\da.EXE
```

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