

AMX/FSTM 86

File System

TOOL GUIDE

First Printing: July 1, 1995
Last Printing: March 1, 2005

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1. Supported Toolsets

AMX/FS™ 86 was initially developed on a PC with MS-DOS® v6.22. It is currently supported on a PC with Windows® using the software development tools listed below. Check the currently supported toolset versions in the relevant chapter of the AMX 86 Tool Guide. If you are not using one of these toolsets, you may have to rebuild the AMX/FS library in order to use your out-of-date or updated tools.

Paradigm Systems, Inc. 16-Bit C/C++ and assembler (for 16-bit memory access)
Paradigm Systems, Inc. 16-Bit C/C++ and assembler (for 24-bit memory access)
Inprise, Inc. (formerly Borland) C/C++ and *TASM* assembler
Microsoft 16-Bit Visual C/C++ and *MASM* assembler
Sybase, Inc. (formerly WATCOM) C/C++ and Microsoft *MASM* assembler

2. Filename Conventions

AMX and AMX/FS files are identified by their 3-digit KADAK part number. Each part number uniquely identifies the target processor(s) on which a specific version of AMX or AMX/FS will operate. For example, the AMX/FS 86 Library module is named *FJ838.LIB*.

AMX and the AMX/FS File System can be used on many different target processors. To reference product filenames in a target independent fashion, the explicit 3-digit KADAK AMX and AMX/FS part numbers are replaced by the strings *mmm* and *nnn* respectively. For example, the AMX 68000 installation subdirectory *AMX532* is referred to as *AMXmmm* and the AMX/FS 68000 Library module *FJ538.LIB* is referred to as file *FJnnn.LIB*.

The following table summarizes the AMX and AMX/FS part numbers to which this AMX/FS 86 Tool Guide applies.

Product	AMX Part Number	AMX/FS Part Number
AMX 86	<i>mmm</i> 831	<i>nnn</i> 838

When AMX/FS is installed, generic header files *FJZZZ.H* and *FJZZZINC.H* are created from their part numbered counterparts. For example, when you install AMX/FS 86, the generic file *FJZZZ.H* will be a copy of file *FJ838.H*. By referencing the generic header file in your application C source file, the appropriate target-dependent, part numbered AMX and AMX/FS header files are automatically included.

3. Application Construction

Environment Variables

You must set the Windows environment variables listed in your AMX 86 Tool Guide. There are no additional environment variables required to provide access to the AMX/FS header files, object files and libraries.

Compiling the FS Configuration Module

To compile the FS Configuration Module, you must have access in the current directory to ALL of the AMX/FS header files delivered with AMX/FS, including the AMX/FS file *FJZZZINC.H*. You must also have access in the current directory to the following AMX 86 header files delivered with AMX 86: *AMX831CF.H*, *AMX831EC.H* and *AMX831SD.H*. The compilation process is then as for any other application module as described in the AMX 86 Tool Guide.

Users of Microsoft C v8.0 and later should note that you will need to use the */f-* compile switch to permit the compiler to compile any module such as the FS Configuration Module which contains huge array declarations or references.

Compiling Application Modules

To compile any application module which references AMX/FS, you must have access in the current directory to the AMX/FS header files *FJZZZ.H* and *FJ838KF.H* and to the AMX header files *AMX831CF.H*, *AMX831EC.H* and *AMX831SD.H*. The compilation process is then as described in the AMX 86 Tool Guide.

Users of Microsoft C v8.0 and later should note that you will need to use the */f-* compile switch to permit the compiler to compile any module such as the FS Configuration Module which contains huge array declarations or references.

Preparing the AMX/FS Floppy and IDE Driver

To use either the AMX/FS Floppy or IDE Driver, you must first assemble the AMX/FS board support module *FJ838BRD.ASM*. Follow the directions in the AMX 86 Tool Guide for assembling the AMX 86 System Configuration Module.

To use the AMX/FS Floppy Driver, you must first compile the following Floppy Driver C source files: *FJ838FLP.C*, *FJ838FLB.C* and *FJ838FLC.C*. Follow the directions given on the previous page for compiling the FS Configuration Module.

To use the AMX/FS IDE Driver, you must first compile the following IDE Driver C source files: *FJ838IDE.C* and *FJ838IDB.C*. Follow the directions given for compiling the FS Configuration Module. You must also assemble the IDE Driver assembler source file *FJ838IDA.ASM*. Follow the directions in the AMX 86 Tool Guide for assembling the AMX 86 System Configuration Module.

808x and 8018x Users

If you are using the IDE Driver on an 8086/88 or 80186/88, you must edit file *FJ838IDA.ASM* and change the definition of *FJ_286* to "*FJ_286 EQU 0*" before assembling the file.

Linking for AMX/FS Use

To use AMX/FS 86, your Link Specification File must include a properly ordered list of AMX object and library modules as specified in the AMX 86 Tool Guide. To this list, add the AMX/FS Library *FJ838.LIB* following all object modules but prior to any AMX Libraries.

If you are using the AMX/FS Floppy or IDE Drivers, you must add to your Link Specification File all of the object modules which you compiled and assembled during the driver preparation process described earlier in this chapter. Include these object modules prior to the AMX/FS Library module *FJ838.LIB*.

AMX/FS is provided in library form, ready to link with your AMX 86 application. Simply copy the AMX/FS 86 Library file *FJ838.LIB* into your link directory. Your AMX/FS system is ready to be linked in the manner described in the AMX 86 Tool Guide.

The AMX/FS RAM Disk driver and PC BIOS Driver are provided in the AMX/FS Library *FJ838.LIB*. There are no separate object modules required.

Note

Toolset dependent filename extensions *ASM*, *OBJ* and *LIB* may appear as *S*, *O* or *A* respectively.

4. Making the AMX/FS Library

The AMX/FS File System Library is delivered prebuilt, thoroughly exercised and ready for use with the toolsets supported by KADAK. There should be no need to remake the AMX/FS Library although some developers do so just to confirm that they can. Obviously, if you have altered the AMX/FS source code, you will have to rebuild the AMX/FS Library. In some cases, you may be using an out-of-date toolset which requires a rebuild of AMX/FS for backwards compatibility.

If you rebuild AMX/FS with a new set of tools that has not yet been tested by KADAK, it is possible that you will encounter toolset warnings or errors. For example, the tool vendor may have changed the syntax for some assembly language directives or revised the definition of its archive or link or locate specification files. In the worst case, the vendor may have introduced a code generation fault which produces an invalid code sequence within some AMX/FS module. If you suspect such a fault, revert to the AMX/FS Library shipped with AMX and report the problem to KADAK's technical support staff.

Let *xx* be the toolset id for the toolset combination for which you wish to remake AMX/FS. See the list of supported toolset ids in your AMX 86 Tool Guide.

It is assumed that AMX has been installed into directory `... \AMX831` ready for use with toolset *xx*.

It is assumed that AMX/FS has been installed into directory `... \AFS838` ready for use with toolset *xx*.

Before constructing the AMX/FS Library, you must first set several Windows environment variables which are needed to build AMX/FS. These environment variables are listed in the header of toolset dependent batch file `EN831XX.BAT` in AMX 86 directory `... \AMX831 \MAKE`. You must set the environment variables specified in that file so that all of the required toolset and AMX 86 files are accessible.

You must also set a Windows environment variable `CJPATH` to define the path to AMX directory `... \AMX831 \MAKE`. Note that the name really is `CJPATH`, **not** `FJPATH`.

To construct the AMX/FS Library, you must first open a Windows Command Prompt window. From the Windows Start, Run... menu, type `cmd` and press Enter. Alternatively, select Command Prompt from the Windows Start menu or any of its sub-menus.

To begin, make AMX directory `... \AMX831 \MAKE` the current directory and run toolset dependent batch file `EN831XX.BAT` in that directory as described in Appendix A ("Building AMX 86") in the AMX 86 Tool Guide. You must do this to specify the version numbers of the toolset *xx* tools that you are using to rebuild AMX/FS. In most cases, the version number for the C/C++ compiler is used to indicate the toolset version.

In the following example, the tool versions for toolset *PD* for the Paradigm C/C++ v6.0 tools are used for illustration purposes. Use the values which correspond to the versions for each of the tools (assembler, compiler, debugger) which you are using. Allowable values are documented in the header of the toolset dependent batch file `EN831XX.BAT`.

```
... \AMX831 \MAKE > EN831PD 6.0 6.0 6.0
```

There are two toolset dependent files which are used to build the AMX/FS Library.

Within AMX/FS directory `...\AFS838\MAKE` you will find file `FJ838XX.MAK`, the make specification file for toolset `XX` which will be used by your `MAKE` utility to build the library. This file purposely avoids constructs and directives that tend to vary among make utilities. You may have to edit this file to meet the requirements of your particular make utility.

Within AMX directory `...\AMX831\MAKE` you will find file `AM831XX.BAT`, the batch file used by the make specification file to run the command line tools for toolset `XX`.

To build AMX/FS, you will need a make utility such as Microsoft `NMAKE.EXE`. Your Windows `PATH` environment variable must provide access to this utility. Before starting the make process, delete all header files (`*.DEF` and `*.H`), if any, which previous builds may have left in directory `...\AFS838\MAKE`. Then issue the following command. Replace the `"C:\KADAK"` in the command with your AMX 86 `drive:path` specification.

```
! Make AMX/FS using Microsoft NMAKE
...>NMAKE -fFJ838XX.MAK "TOOLSET=XX" "CJPATH=C:\KADAK\AMX831"
```

When the make is complete, directory `..\TOOLXX\LIB` will contain your updated AMX/FS Library and object modules.

Directory `..\ERR` will contain zero or more text files which summarize the error messages, if any, produced during the make process.

Note that if you add the Microsoft `/N` switch immediately following the `NMAKE` directive on the command line, the make utility will list the make operations on the screen but will not actually do the make. This can be helpful in locating path problems if you have not properly installed AMX or AMX/FS or have not provided correct Windows environment variables.