MM-401™

MPU-401 Compatible MIDI Interface for the IBM PC and Compatibles

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FCC COMPLIANCE

The MM-401 complies with Part 15 of the FCC rules. Operation is subject to the following conditions:

(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

The MM-401 FCC identification is: **IMJMM-401**

READ THIS! ...   READ THIS! ....

Included with MM-401 is a factory diskette containing diagnostic software, a number of helpful DOS MIDI utility programs, and Windows help files for several major sequencers.

To install these programs, put the diskette in your drive and type:

INSTALL (Return)

Do this before putting your MM-401 in your computer. The install program will automatically guide you through an installation procedure for your computer and the MM-401.

Package Contents

The MM-401 package consists of the interface card, a MIDI In/Out adaptor cable, and a diagnostics and utilities disk.

Features

The MM-401 has the following features:

- 1/3 card length — fits in either 8 or 16 bit ISA slots.
- One MIDI In and one MIDI Out jack.
- Switch selectable address and interrupt/IRQ locations.
- External click metronome output.
- Runs on any PC at any speed, including PC/AT/386/486's.
- Can be reset via a computer hardware reset.
- Accepts MIDI Time Code data in intelligent mode.
- Built-in internal timer in UART mode.

Drivers

Some MIDI applications make use of drivers. You will have to make sure that the correct MIDI driver is installed in your application for the MM-401 to work with it.

Windows uses the Roland MPU-401 driver provided on the Microsoft Windows diskettes. If you encounter problems using the MM-401 with Windows, check to make sure Windows has

loaded the Roland MPU-401 driver. This can be done by opening the *Control Panel* icon in the *Main* Group and clicking on the *Drivers* icon. For further information on setting up drivers under Windows, see the *Windows* section.

If you are using a DOS sequencer that uses drivers, your program will include MPU-401 compatible drivers. Make sure the MPU-401 driver is properly installed. Generally, the MPU-401 driver is installed as the default driver. If you have any questions about which driver to use or how to install the driver, call the manufacturer of your software and ask them how to install an MPU compatible driver. This topic may also be covered in your applications instruction manual.

Interrupt/IRQ and Address Selection

It is vital to make sure the "interrupt/IRQ" and "address" settings are correctly set on the card. The default settings for the MM-401 (and all MPU-401 compatible cards) are *address 330* and *interrupt/IRQ 2*. If another adaptor card in your system already uses these settings, your MM-401 may not work properly.

The MM-401 has eight dip-switches which allow the interrupt/IRQ and addresses to be selected. The settings for these switches have to be set so they don't conflict with any other cards in your computer. If you install your MM-401 and it does not work correctly, you can use the installation program included on the diskette to determine which interrupt/IRQ and addresses are free. You may then select one of these settings for your interrupt/IRQ and also your address.

IMPORTANT: When using a DOS program, you need to make sure that the interrupt/IRQ and address selected on your MM-401 are also selected within your program. For example, if your MM-401 is set to interrupt/IRQ 2 and address 330, you have to make sure your sequencer is also set to interrupt/IRQ 2 and address 330. To find out how to do this, you will need to look at your program's manual or call your program's manufacturer.

Some older software may not allow you to change the interrupt and will only work on interrupt 2. If this is the case you may need to change the interrupt of conflicting devices instead of the interrupt of the MM-401.

The dip-switches used to set the address and interrupt on the MM-401 are located on the lower left hand side of the card as you view it with the metal bracket on the right side. The switches are numbered from right to left. Depending on when your card was manufactured the switches may have "OPEN/CLOSED" labeling instead of "OFF/ON." If this is the case "OPEN" is equal to "OFF" and "CLOSED" is equal to "ON."

The following table shows the possible address locations and corresponding switch positions:

Switch:	1	2	3	4	Address Location
(Hex)					
	off	off	off	off	200H
	off	off	off	ON	210H
	off	off	ON	off	220H
	off	off	ON	ON	230H
	off	ON	off	off	240H
	off	ON	off	ON	250H
	off	ON	ON	off	260H
	off	ON	ON	ON	270H
	ON	off	off	off	300H
	ON	off	off	ON	310H
	ON	off	ON	off	320H
	ON	**off**	**ON**	**ON**	**330H** **(default)**
	ON	ON	off	off	340H
	ON	ON	off	ON	350H
	ON	ON	ON	off	360H
	ON	ON	ON	ON	370H

The following table shows the possible interrupt numbers and corresponding switch settings:

Switch:	5	6	7	8	Interrupt Number
	ON	**off**	**off**	**off**	**2 (default)**
	off	ON	off	off	3
	off	off	ON	off	5
	off	off	off	ON	7

After setting the interrupt and address as described above, you will now need to mechanically install the MM-401 into your computer. Remember, if the card doesn't work after installation you may have to run the diagnostic program and select a different address or interrupt.

Mechanical Installation

To mechanically install the MM-401, do the following:

1. Turn off your computer.
2. Remove the cover and position the computer so you have easy access to the slots.
3. Select the slot you wish to place your MM-401 card in and remove the metal bracket that covers the access hole on the back of the computer.
4. Position the MM-401 card over the slot and fit the card loosely into the slot with the MM-401 card upright. Then press the card downward into the slot gently but firmly until the card is seated in the slot. Make sure the card is firmly and squarely seated into the slot.
5. Screw the MM-401's metal bracket into the screw hole inside the back of your computer.
6. Place the cover back on your computer.
7. Connect the MM-401 MIDI In and MIDI Out cable assembly to the connector on the MM-401 at the back of the computer. Use the thumb screws on the cable assembly to attach it to the connector.
8. If you wish to use the metronome, a cable with an RCA plug may be plugged into the jack above the MIDI cable assembly connector. This cable must then be plugged into an amplifier.
9. Attach any MIDI devices you have by connecting your MIDI cables to the MIDI In and MIDI Out cables of the MM-401.
10. Move your computer back to its original position. You may now turn on your computer.

Windows

The installation of the MM-401 is simplified by clicking on the *Driver* icon found under the *Control Panel*. The *Control Panel* can be found under the *Main* group. In addition to installing the Windows MIDI driver, you will also have to set up your Windows MIDI applications so they select the installed MPU-401 (many times your software will use a setting called Multimedia Extensions as its Driver setting to access the MPU-401 driver) for MIDI input and output.

First-Time Windows Driver Install

If there is no current MM-401 Windows MIDI driver installed on your system, follow these steps to install MM-401 Windows driver:

1. Start Windows as you usually do.
2. Click open the *Main* group.
3. Click open the *Control Panel.*
4. Click on the *Drivers* icon.
5. Check for the Roland MPU-401 entry. If one exists, then the driver has already been installed — click on cancel, and close the *Control Panel*. You then can go directly to the last step to set up your application.

    If the MPU-401 driver is not present, please continue.
6. Click on the "add" button.
7. Select the "Unlisted or Updated Driver" entry and push the "OK" button.

8. You will be prompted for a disk drive from which to read the Windows 3.1 drivers. Insert the proper Windows disk into your floppy disk drive, and, if necessary, enter the disk drive specification in the prompt box. Click on OK.
9. When the "Add Unlisted or Updated Driver" Window pops up, select the "Roland MPU-401" and click on OK.
10. The Roland MPU-401 driver setup dialog box will then appear. It will allow you to set up the driver to match the interrupt/IRQ and address settings on your MM-401 card.

    Some systems use MPU-401 address/port settings other than those available in the dialog box. You must then change this manually by editing the "SYSTEM.INI" file in your Windows root directory, and changing the address/port listed under the [MPU401,DRV] for your hardware.

    Warning: Be careful when doing this. An incorrect setting may result in your computer crashing or locking up. If there is any question about how to make these changes, please consult your computer's user's guide or manufacturer directly.
11. Once you've selected the interrupt/IRQ and address/port, click on OK.
12. In order for Windows to install the new driver completely, you will be required to exit and restart Windows.
13. After restarting Windows, run your MIDI application(s). You will need to set up each MIDI application in order to use the MM-401 as the selected interface. From within the application(s), select the MPU-401 as the current device. (The selection procedure will depend on the application.)

Trouble-Shooting

If you are having problems using your MM-401 it is probably a good idea to reread this manual and make sure you have properly installed the card. If you can't find the source of your difficulty check the following typical fixes:

SYMPTOM: The computer won't boot with the card in. Everything is fine without the card. (This may include strange error messages.)
SOLUTION: Run the INSTALL program and make sure the interrupt/IRQ you have set the card to is free. Also, make sure the card is recognized at the address selected and that all of the diagnostics pass.

SYMPTOM: The diagnostic program finds the address that the card is at, but says "No Interrupt Detected."
SOLUTION: You are probably running Windows in your system. Go ahead and quit Windows before running 401TEST.EXE. When Windows is running, even in the background, it steals the interrupt/IRQ from the MM-401 (even if you run 401TEST.EXE from the DOS Prompt). Try running the program from DOS — it should now work.

SYMPTOM: My computer can't find the card when I run my sequencer program.
SOLUTION: Same as above.

SYMPTOM: The card works fine with my DOS programs but

isn't working with Windows.

SOLUTION: Make sure you have an MPU Windows driver installed. This driver could be either the Roland MPU-401, Roland LAPC1, or Twelve Tone Systems MIDI driver, or some other MPU-401 compatible driver. If none of these drivers is present you need to install <u>any</u> one of them. The Roland drivers are supplied with the Windows software. Also make sure that the address/port and interrupt/IRQ settings match those set on the MM-401.

SYMPTOM: The Windows MPU-401 driver is installed, but I'm not getting any sound when I run my sequencer.

SOLUTION: Your Windows application must select the MPU-401 (MM-401) as its MIDI Input and Output device. This is done from within the application itself.

SYMPTOM: The card works fine with some of my programs but doesn't work with others.

SOLUTION: There's probably a set-up problem with the program that isn't working. It is likely you don't have a driver installed to talk MIDI to your computer. Check the set-up part of your program and make sure the appropriate MIDI driver is installed. Next, make sure that the driver is also set to the address/port and interrupt/IRQ that match the settings on the MM-401.

SYMPTOM: The card checks out fine with the Install/ 401TEST program but won't run the software that comes with the card.

SOLUTION: Run the INSTALL program and change the

address/port and interrupt/IRQ to match the settings on the MM-401.

SYMPTOM: My keyboard shows "MIDI Data Error," or "MIDI Buffer Full."
SOLUTION: Check your MIDI cables and MIDI connections. Be sure the cables are plugged in all the way. If the problem persists try new cables.

SYMPTOM: MIDI is being sent and received properly but when I play my sequencer it lugs and bogs down.
SOLUTION: First, make sure you don't have a MIDI feedback loop. A MIDI feedback loop can occur if the MIDI Out of the interface card is somehow connected back to the MIDI In. This can be avoided by turning off the MIDI Thru on either your keyboard or in the application software.

If this is not the case your computer may be too old and slow to handle the flow of data. Are you running on an old 4.77 Mhz computer? If so, you may need to purchase a sequencer program that runs the MM-401 in Intelligent mode to avoid this problem.

SYMPTOM: I'm a programmer and want to program for the card. Do you have any information or drivers for the card?
SOLUTION: Driver software for the card has been provided on the factory diskette. Check the disk directories for information on this. You can also contact MIDIMAN by mail, phone, or fax.

How to Change the Address and IRQ Settings

Recent updates to the MM-401 have necessitated changes in how the I/O address and IRQ are set. The instructions on this page supercede the instructions in the manual.

The MM-401 supports 4 different IRQs and 4 different port address settings. The two left jumpers on the card control the port address setting. The MM-401 comes set to port address 330 and IRQ 5. This should work with most systems and is the most common setting for MPU-401 compatible cards. However, if your system includes a SoundBlaster or compatible soundcard, it will generally have the same default settings for its MIDI/Joystick port. In this case, you will have to change the IRQ and Port Address on your MM-401 using the chart below. "In" means that both pins are covered by the plastic jumper. "Out" means that the pins are uncovered or that the jumper is only covering one of the two pins. The address pins on the MM-401 are labeled 20 and 10. The IRQ pins are labeled 3, 5, 7 and 2. The factory defaults of address 330 and IRQ 5 are shown on next page.

Lifetime Limited Warranty

MIDIMAN warrants that this product is free of defects in materials and workmanship under normal use so long as the product is owned by the original purchaser and that purchaser has registered his/her ownership of the product by sending in the completed warranty card.

In the event that MIDIMAN receives written notice of defects in materials or workmanship from such an original purchaser, MIDIMAN will either replace the product, repair the product, or refund the purchase price at its option. Shipment to and/or from MIDIMAN shall be at the expense of the purchaser. Such equipment should be in a protective package with a description of the problem.

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ages set forth herein shall remain in full force and effect.

If you have any questions, comments, or suggestions about the MM-401 or any MIDIMAN product, we invite you to contact us directly at:

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