WHAT IS 'MIDI' ?

'MIDI' stands for Musical Instrument Digital Interface and has become a standard among manufacturers all around the world for connecting electronic musical instruments together and to micro-computers.

A simple, 5-pin Din socket is now in evidence on the back of most keyboards and drum machines marked 'MIDI' and which should not be confused with the older Roland and Korg 'Sync 24/48' 5-pin Din clock and start/stop socket. This new, MIDI 5-pin Din socket is a serial, digital computer interface and allows up to 16 instruments to be chained together.

Most synthesizers nowadays will have a MIDI In, Out and Thru socket allowing connection between other keyboards and computers. The settings of MIDI digital delay (echo) and digital reverb (hall effect) units can also now be controlled down a MIDI line by another MIDI instrument. So, if you have a computer as a central MIDI control unit (or 'sequencer') you can use it with a hardware MIDI interface and the appropriate software as a multitrack , digital recorder with accurate computer timing control.

It is important at this stage to realise that a MIDI sequencer won't actually record the audio sounds that you hear but simply the MIDI control codes of instruments that produce the sounds and effects, so here is a short list of exactly what can be controlled:

KEYBOARDS & SYNTHESIZERS: Notes (pitch), timing values, sound change parameters & patches (sound memories). If you plug two MIDI keyboards together (MIDI Out on the 'master' to MIDI In on the other ,'slave' unit) whatever notes you play on the master will also play on the slave assuming that they are both set to the same MIDI channel (remember MIDI is 16 channels 'deep'). The sound from each keyboard will vary depending on which patch (sound memory) is selected on each unit. Only in the last few years have synthesizers had the facility to memorise different sounds in 'patch memories' ; however now, with MIDI, you can not only change a slave keyboard's memories from the master keyboard but you can also 'dump' these memories to disk through a micro-computer either individually or in 'banks'.

So, in separate operations, a micro computer can now set up the patches on your synthesizer and then control your synthesizers to play music on up to 16 different channels through a MIDI interface. To help understand terms such as 'patch' you will find overleaf a short glossary.

DRUM MACHINES: The MIDI standard specification sends a MIDI clock pulse down each MIDI line so that two drum machines may be connected together and play in time together without any further timing synchronisation connections. For example Roland's TR-707 Rhythm Composer (drums and cymbals) may be connected to their TR-727 Percussion Composer (latin percussion voices) via MIDI.

Each voice in a drum machine may also be assigned to an individual note on a MIDI keyboard thus allowing a keyboard player to play the drum sounds via MIDI. Why? Nowadays, many synths and electronic pianos are touch-sensitive and even have weighted piano-type keys, so years of slaving away at piano lessons can now be put to good use giving expression to your drum machine programming! And, of course, anything that can be recorded on a MIDI keyboard can be accurately played back by a computer or sequencer......so the keyboard will play back on one MIDI channel whilst your drums play away perfectly in time on another MIDI channel.

DIGITAL EFFECTS UNITS: Echo and reverb units are now so versatile that they can reproduce many different types of slap-back, repeat, infinite, flanged and chorused echoes in many room and hall-size settings. Since these MIDI effects units are digital, they too have patch settings (memories) and these can be accessed and changed via MIDI.

For instance, half way through your musical masterpiece recorded onto your computer or sequencer you may wish the rich, fretless bass guitar sound to change to a snappy, tight funky bass sound with a slap-back echo. All this could be achieved almost instantly by one MIDI channel changing patches on your bass synthesizer, digital delay and digital reverb all at the same time.

SAMPLING UNITS: The latest breed of electronic musical instruments enables you to 'sample' (in other words digitally record) a short sound into your computer from a microphone or line input, plug a MIDI keyboard in and hey presto, off you go.....you can change the pitch of a cork popping or glass ringing and even play it in polyphonic mode (with chords)! Alternatively, you can 'sample' into one of these new breed of sampling units and then access the sound via MIDI from your computer. You can see the wave form of the sound that you sampled, cut out certain harmonics, truncate the length or loop it at a convenient point (the computer can even tell you where that is). Physics was never this much fun before!

THE FUTURE: Since MIDI is a fairly simple set of control codes it won't be long before we see MIDI lighting and graphics interfaces that will turn your seemingly harmless musical masterpiece into a truly integrated music system controller. Just imagine assigning any colour and graphic to any note and then making it change to reflect how high the pitch is and how long the notes are sustained for! What might seem at first to be a corny concept is going to happen very soon and will only be limited by the computing power inside your micro-computer and your imagination.

MUSIC NOTATION: There are already several music notation packages for the IBM and Macintosh on the market with full MIDI interface capabilities. Draw a stave on the screen, position the computer's cursor where you require the notes to appear, play your MIDI keyboard and the notes will appear on the screen; this method requires quite considerable computer graphics memory and much cursor moving , so input systems like the Macintosh's mouse are likely to be the most popular. Similarly, to print out professional-style notation needs quite a versatile printer and it is unlikely that the cheaper models will suffice.

However, MIDI has made all this happen; without it we would still be groping around in the dark trying to make one manufacturer's non-standard instrument interface to another's. Digital technology is tumbling in price every year and providing facilities for musicians now which we might only have dreamed about a couple of years ago.

For further details of UMI-2B for the BBC B , Jim Miller's Personal Composer for the IBM PC, the YAMAHA CX-5M MSX Music Computer and other MIDI musical hardware and software please contact: THE LONDON ROCK SHOP
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ELECTRONIC MUSIC GLOSSARY:

MIDI: Musical Instrument Digital Interface.

POLYPHONIC SYNTHESIZER: One that plays more than one note at a time.

MONOPHONIC SYNTHESIZER: One that plays only one note at a time.

MULTI-TIMBRAL SYNTHESIZER: One that has the facility to play more than one sound (or 'patch') at a time, in layered (on top of each other, e.g. piano & strings), split (bass to the left, brass to the right of a split point) or computer-assisted multi-MIDI channel sequencer mode.

PATCH: a sound set up on a synth (e.g. strings, brass, funk bass). A patch may be retained in a memory location if a synthesizer has memories.

PRE-SET SOUND: a permanent sound 'burned' into a synthesizer's ROM memory by the manufacturer. Normally a pre-set sound cannot be edited.

PROGRAMMABLE SYNTHESIZER: One that allows you to set up several personal patches and retain them in memory for future recall.

RAM PACK: A small plastic-encased RAM chip (powered by a miniature battery) that can be plugged into an appropriate synth and load/ store patch information.

RAM CHIP: Random Access Memory Chip. You can store information in any location within the RAM part of a computer's memory and access it any time later so long as you don't turn the machine off! If you do, the information will be lost since RAM doesn't retain information without power (ROM does); RAM is thus called volatile memory.

ROM CHIP: Read Only Memory Chip - an area of information storage within a computer that cannot be written into but only read by the operator. For example, a software program such as UMI is 'burned' onto a ROM chip and is non-volatile (meaning you do not lose it when you turn the machine off). Software programs that are kept on a ROM board inside the BBC B can be instantly accessed without the waiting time normally associated with disk/cassette-based programs.

SEQUENCING: The process of joining note patterns together to create a song chain.

PATTERNS: The individual 'bars' or groups of bars that can be joined together to make a song.