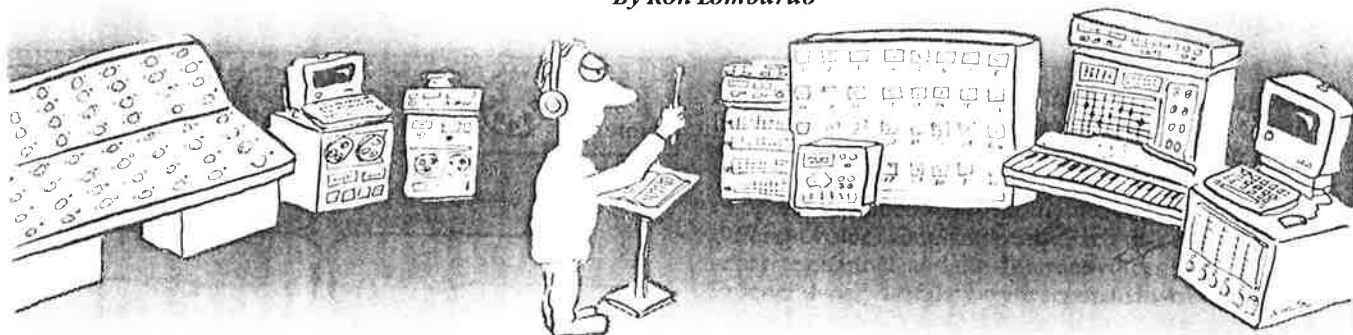


READY MISTER MUSIC?

By Ron Lombardo



So, you've reached the point where you can no longer live without getting your Mac tuned in to MIDI music. What does it take?

First, let's make a few assumptions. We'll assume that you already own a Macintosh, with at least 512K of memory available. If not, please stop reading now, and go out and find one immediately. (You'll find they have uses other than acting as the controller of your music system).

We'll also assume that you have at least a rudimentary knowledge of music. You don't need to be able to score a Beethoven symphony, but if the significance of "Every Good Boy Deserves Fruit" escapes you, you should probably start with an introductory book on music.

The first step to becoming a computer music superstar is finding yourself a good music store. Bear in mind that when it comes to computer music, not all music stores are created equal. If you begin talking MIDI and the sales assistant tries to direct you to the nearest dress shop, or simply gives up and tries to sell you a ukulele, you're probably in the wrong place.

Start with shops that have a heavy leaning towards keyboard instruments (preferably the non-wooden variety), and talk to the attendants about MIDI, sequencers, and the like. You'll soon know if you're in the wrong place. You'll also sense whether or not you're in a shop that's prepared to talk to its customers.

You won't get all the information

you need in one ten-minute chat, so there should be a preparedness on both sides to talk about your requirements and expectations.

By the same token, be reasonable in your demands. Do not proceed to stop a business for 12 hours while you idly chat, and then expect a 60 per cent discount on everything that you eventually buy.

If you can find sales personnel who are musicians as well you should get a more sympathetic ear. Many, many attendants are musicians. They're not hard to find.

Now you know that you want to spend some money and you know where you will spend most of it. Only two questions remain: How much to spend? And on what?

Music to order

By Robin Robertson

Interview with a professional

Rob Workman is a professional musician and producer. He makes music to order. You've probably heard his music in documentaries and advertisements, but not his name: He is one of those hidden people known in the music industry by word of mouth. I heard about him from Billy Fields. He said Rob Workman is one of the best.

I also heard that he makes music with a Macintosh, so I spent a day in a recording studio and saw how it was done.

The recording studio was owned by Mannie Fisher of Double Bay. It was one of those soundproof rooms where the ceiling was padded with saw-toothed foam rubber, and the window was shut tight. No noise could get out. No noise could get in. I could look out the window at a curiously hushed

world, while inside, the music crescendoed.

To produce this music, Rob needed a drum kit, two guitars (electric and base), an organ, and a singer. The singer was Barry Leef. Like Rob, he was also known by word of mouth, and you've heard him sing ads on television, including the Swan Lager ad. He is also a vocalist from the rock group, "Supermarket".

Apart from Barry, there were no other musical instruments — as I knew them. There was only Rob Workman and a collection of boxes. Musical boxes.

There was the drum box, the sync box and the MIDI box. These were surrounded by such musical wonders as the Kurtzweil, a multichannel tape recorder, a mixer and effects units. Got that?

Let me introduce them. The drum box was smaller than a briefcase, but it contained one entire drum kit plus a drummer who kept perfect rhythm. This box cost around \$A2,000.

The sync box (\$A2,500) was about the same size. "It controls everything to do with rhythm," Rob explained.

The MIDI box (interface) was small but crucial. Without it, the Macintosh could not communicate with the other musical boxes and synthesisers. Every one was a computer of some sort, and MIDI was the language common to them all. Through MIDI, they could talk, computer to computer.

The Kurtzweil (around \$A20,000) was a synthesiser, and to me, its keyboard was refreshingly familiar. It might have been a small piano, but it wasn't. That simple keyboard could simulate 400 different musical sounds, including a harp, a 100 voice choir and a full symphony orchestra.

The multichannel recorder (around

Getting started with Mac Music

Both questions are obviously personal, but here are a few pointers.

The first answer is easy: how much can you afford? Multiply the figure by at least two, and this will give you an indication of how much money you will end up spending.

The first link in the chain is "sequencing" or composing software. Much has been written elsewhere in this issue about the relative capabilities of the various packages. You need to make a choice and learn how to use the software.

Next is a MIDI interface. Some MIDI interfaces are being imported into Australia, others are being made here. If you really want to save some money, you can probably find a circuit diagram for a MIDI interface which you could build for under \$A50.

Now we get to the interesting part, the synthesisers. A number of different types are available with price tags varying from about \$A500 to about \$A500,000. A few synthesiser categories are particularly significant for computer music enthusiasts, and we'll examine some of these more closely.

Let's consider the difference between "monotimbric" and "multitimbric" machines.

Monotimbric machines allow only

one type of sound at a time to be played. Don't confuse this with a monophonic, which allows only one note to be played at a time, similar to woodwind instruments.

Multitimbric machines usually allow you to direct more than one MIDI channel to them, so, for example, you could have one synthesiser playing bass and piano at the same time, each on different MIDI channels.

There are now many types of synthesisers on the market. As you wander looking for instruments, you will hear terms like Subtractive Synthesis, FM (Frequency Modulation) Synthesis (Yamaha), PD (Phase Distortion) Synthesis (Casio), Digital Waveform Synthesis (Korg), and probably a lot more.

Unless you want to spend a great deal of time reading about these various types of syntheses, don't worry about it. Instead, let your ears (and bank balance) be your guide. Remember that listening to factory preprogrammed sounds on a synthesiser is a good indication of the type of sounds that can be produced, but it doesn't indicate how hard it is to create these sounds from scratch. Look into this if you want to create your own original sound textures.

(Continued on page 32)

\$A80,000) had a tape which was six centimetres wide (16 times wider than ordinary cassette tape). Its two reels were as big as dinner plates, and the tape wound from one to the other around a series of metal cotton reels. It had 24 tracks, and each instrument was recorded on a separate track.

The mixer was a long desk with over 300 knobs on top. Every other box plugged into it. The individual musical instruments were channelled through it and "mixed" so they sounded as if they were being played together. It was the mixer which ensured that the toms didn't drown the organ, and the bass drums faded into the background while the guitar soloed.

What did the Macintosh do? It controlled all the instruments. It told them when, what and how to play. Rob's Mac was a Plus, with a double-sided disk drive, and it was running a program called Performer 1.22.

(Performer, by Mark of the Unicorn, retails at around \$A600).

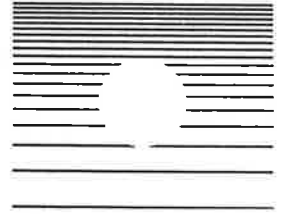
The previous day, Rob had recorded the information (what he called MIDI data) on to Performer. Using his own synthesisers at home, he had played the music on to Performer and saved it. The music was now MIDI data, and could be used to drive any synthesiser.

Rob connected the Mac to the MIDI box, which was also connected to all the musical boxes. The Mac sent MIDI data to the MIDI box, and from there it was sent on . . . and what came out was music.

Of course, there could be no communication without cables. Cables connected everything, and formed a rubber nervous system on the carpet. I counted ten plugged into the drum box alone. Rob opened his suitcase and it was crammed with more cables. He pulled out a short, Mac-colored one. "See this?" he grumbled, "it cost \$A40!"

(Continued on page 31)

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The song he was producing had been commissioned for a sales convention, and would only be played once. It had to be delivered tonight. "If it was a record," Rob pointed out, "I would spend about a week on the one song."

He talked to Barry. "This song is in A. Here are the words," (printed, by the way, on the Imagewriter). "It's not a difficult melody, but if you want to sing it lower, now is the time to tell me."

He hit the top note on the piano, and Barry tried it. They decided the song should be taken down to G. Rob returned to the Mac. "I outline what I want to transpose," he explained to me, "then tell it what note to transpose it to. This song is 120 bars long, and it needs time to change everything. Also, have a back-up of this song just in case I goof up here." As he spoke, Performer transposed the song down to G.

I asked how he would do this without the Mac. Rob said it wasn't easy, especially if the music had already been recorded on the tape. To transpose it, he would have to rewrite the song, then record the whole tape again, track by track.

Barry shut himself in a soundproof booth, and Rob spoke to him through a microphone: "Ready?" He started the music, Barry started singing, and his voice was added to one track of the tape.

In my innocence, I assumed that Barry would sing all the words, in one go, like they do on video clips. I wasn't ready for real life. He was singing the first line, delightfully, I thought, when Rob rudely interrupted. He hit a button on the recorder and the music moaned to a halt. He said to Barry: "A bit tougher there". He started again, and Rob interrupted again, with a "too soon". Then Barry garbled the words of the chorus, and faded away, mumbling "sorry". At this point, I expected them to pack up and go home.

Instead, they continued to interrupt each other. They discussed the "grunty" bits, where Barry wondered if it was too much, and Rob thought it was just right. Then they fussed about fitting the words into the music. Barry had to be flexible. The music wasn't.

Of course, whenever he stopped singing, the recording also had to stop.

When it resumed, he didn't start from the beginning again. He merely picked up where he left off, and so did the tape recorder.

After thirty or more stops and starts, the song was finished. Rob played it back and I listened closely. Where were the joins? How could it sound so spontaneous, so natural, after all that manipulation?

Then Barry added his own harmonies to the chorus. In a higher voice, he sang along with himself — twice — and created a three-part harmony. He was a trio of one.

Barry went home. Rob added two more instruments: a little bell (like my cat wears on his collar) and a "grunty" guitar. Grunty? You know. Dirty. Well, anyway . . . Rob played it on to the tape with the Kurzweil, which well knew the meaning of "grunty".

With all the music in place, Rob retired into his earphones and twiddled knobs on the mixer. When he was finished, the song was four minutes long. It had taken 14 hours to produce. Rob had spent six hours yesterday arranging the music and playing it onto Performer, and eight hours today, recording in the studio.

In that eight hours, I had seen the song grow from the bare bones of MIDI data to the fleshing out of Barry's three-voice chorus. Well, I had seen the mechanics. I had seen buttons pressed. Numbers registered.

Apart from Barry, I had seen boxes perform. They had made pre-packaged music, to which you only had to mix a melody, and add a pinch of human element.

Rob made it look so easy. I'm sure anyone could do it.

You start with a Mac, Performer, a MIDI box and a synthesiser or two. If you can play a keyboard and read music, all the better. A little musical talent is also handy.

However, you must have a good grasp of figures so you can understand what is going on. For instance, Performer divides a beat into 480 units. The drum box reads 24 pulses per quarter note. SMPTE code reads time within one-eighth of one twenty-fifth of a second. MIDI sends data at a rate of 34.2K-bytes per second . . .

Finally, you need a thorough working knowledge of cables. And a map to follow where they are going.

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Mac Maestro

A comparatively recent innovation has been the sampling synthesiser, which allows you to record the sound of any instrument digitally, and then use that sound by playing on your keyboard. This even works with the human voice. I'll bet that you believed they were real violins that you have been hearing in songs and commercials lately!

There are, of course, price ranges and different features on all the synthesisers available. Shop around, listen and play before you buy. If you're not a musician, your music store will be only too glad to supply one.



While we're on the subject of synthesisers, there is one thing that is easily overlooked. If you're going to perform solo computerised works, you should consider the buying of a percussion synthesiser. "You don't need drums to produce good music!", I hear you say. No, possibly you don't, but it certainly helps in producing professional-sounding renditions of popular music.

Again we have a plethora of models and synthesis techniques, and of course, prices. This time we have the additional confusion of different manufacturers opting for different "instruments" on their drum machines. Which is more important to you, a handclap or a cabasa? My personal preference in a drum machine is the Roland TR-505. It sounds great, and it is one of the cheapest around.

Using drums is very similar to using other MIDI instruments. You simply assign one MIDI channel to your drum machine. On your drum machine you assign individual notes to individual

percussion sounds. On my system for example, whenever my drum machine is told to play C2 (C two octaves below middle C) it plays a bass drum; whereas D2, one tone higher, is a snare drum. There are different notes for cymbals, tom-toms and so on.

You arrive home with your new toys, and want to make music. Plug them in . . . lights flash . . . you press keys and . . . nothing happens. These devices do not in general have built-in loudspeakers, and need some form of external amplification.

The simplest way to get real sounds out of your synthesiser is to connect to the "AUX" input of your stereo

system. The only problem you may have here is finding a suitable cable. We shall address the cabling problem later. But first let's look at the aspects of plugging your synthesiser directly into your stereo. This setup does give you the capability of recording your masterpieces easily, but does have some drawbacks. The worst is that you can only listen to one instrument at a time.

A better solution is to get yourself a multichannel mixer. Here we have the usual problems: spend \$A100 or \$A100,000, the choice is yours. Again "you get what you pay for". Let's say that you get a mixer with enough channels to accommodate all your synthesisers. Don't forget that some synthesisers have stereo output and can use two channels. Leave some room for expansion; you don't know what you'll bring home next!

If you don't have a stereo unit, or don't want to use your stereo (after all, it is a bit difficult to carry around to all your newfound "gigs"), you may want to look at a dedicated keyboard amplifier. Remember to pick one that

has a wide enough frequency response for all your synthesised sounds.

So, now you've got it all together. It sounds great — almost. "These sounds sound great, but when I listen to records, it all sounds . . . fuller!" Now's the time to look at spicing up your sound, making it sound "professional". If your budget allows, you may want to look at devices like reverberation units, digital delays, flangers and aural exciters. These devices are beyond the scope of this article, but do go and have a listen and find out what a difference they can make.

The budget-conscious amateur should look into pedal reverb/chorus/flanger units. The effect is reasonably good, and you are looking at about one tenth the price of the professional gear.

The last item on your shopping list should be cables. Lots of cables. Twice as many cables as you think you'll need — you will need them.

You'll need MIDI cables to connect from your interface to your synthesiser — one in and one out. Add one MIDI cable for each synthesiser in your system.

What's a MIDI cable? A simple 5-pin DIN to 5-pin DIN. It's worth noting that some commercially available DIN to DIN cables work as MIDI cables. But the internal connections in Tandy cables mean that they do not work as MIDI cables. Play it safe: buy some MIDI cables at your music store. You'll also need signal cables between your synthesisers and mixers, between effects boxes and mixer, mixer and amplifier, microphone and sampler, fridge and microwave. . oh sorry!

While you are buying all this hardware, get yourself a few battery eliminator type of transformers. Get the variable type, with 3, 6, 9, and 12-volt output. Rest assured, you'll need them.

If you're on a tight budget, remember there are plenty of inexpensive machines around. Keep your eyes on the secondhand market (watch the trading posts and classifieds) and talk to as many interested people as possible.

Above all have fun. Computers are not a replacement for talent in music, but they can make putting it all together a lot easier.

MAC