Yamaha DM2000

We've suspected its existence for well over a year and looked forward to its delivery since its unveiling towards the end of last year - few recent products have been as eagerly awaited as Yamaha's new digital desk. The expectations have been met and exceeded.

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ON A SUNNY AFTERNOON in the mid 1990s, I walked through the London smog towards Air Lyndhurst, unaware that the world was about to change. The occasion? The launch of the 02R.

Pivotal developments are, perhaps fortunately for our sanity, rare. Yamaha's persistence paid off handsomely with the 02R. Automated digital consoles were suddenly an option for all manner of applications. Of course, there were compromises but the balance of features to price was well aimed and the 02R set the agenda for every subsequent rival console. Until last year there was no serious competition. Other manufacturers' attempts were either 'me too' or flawed in other ways. Now, just when it looked as if there might be some serious contenders emerging, Yamaha has moved the goalposts again. Positioned above the 'old' 02R the DM2000 is significantly less costly than the very old DMC1000 and not vastly more than the original 02R asking price.

02R is a hard act to follow. The question must be, will the DM2000 and its sibling 02R96 be similarly influential?

With the meter bridge and solid wooden side cheeks in place, the DM2000 is a very handsome beast and a leather(ette) armrest adds a touch of class. The modish utilitarian look is all well and good, but with paying clients a little more is required. Come to that, if you live with a console for extended periods, aesthetics are a factor. The side cheeks can be removed to cater for 'building in' the DM2000 with custom studio furniture.

The relatively narrow (965mm) but deep (850mm) proportions are well judged. Physically large enough to impress but not too big for small project studios or too expensive in lost seats when used in a theatre.

The scope of the DM2000 begins to become apparent with the sheer number of audio and control channels. Twenty-four identical channel strips are nine layers deep. Five layers are concerned with the physical input channels 0-96 and the masters. The other four are labelled Remote 1-4 and are primarily intended to be used with an external DAW but can be used with any suitable MIDI device. In this software version, Remote 1 is set up for Pro Tools, the others are user-definable. A template is being developed for Nuendo and I have no doubt that there will be others. Communication is two-way with feedback from the DAW on the DM2000 surface. With suitable I-O arrangements this makes for an extremely powerful combination.

Unlike the earlier consoles, there is comprehensive patching of inputs and outputs. Vertical pairing of input channels used for stereo sources is another great advance in ergonomics and there is M/S decoding when needed.

The majority of the connectivity is via YGDAI cards and all the I-O is massively configurable and you need to plan what you are doing. The Studio Manager application helps make this a pleasurable process, on or off-line, and also provides good graphical representations of channel strips, the surround panner, and the graphic equalisers. Automation data can be kept on SmartMedia cards in the built-in slot or via Studio Manager.

Eight on-board effects 'units' add considerably to the appeal. The first two of these may be used for surround effects including a more than halfway decent reverb and multichannel dynamics. However, there is no such thing as a free lunch and two 5.1 reverbs use all eight processors, but I'm not complaining!

This specification is already impressive but Yamaha has a real ace up its sleeve. Unlike every other console anywhere near this price, there is no reduction in the number of channels, buses or effects at 96kHz. All the onboard convertors, processing and effects operate at conventional or high sampling rates. Although 44.1kHz or 48kHz working is still the norm for many applications, this future-proofing will be reassuring.

The DM2000 has surround monitoring capabilities up to 5.1 and, with a little ingenuity, 7.1. This includes a pink noise generator for setting up, bass management, downmixing, level trim, and delay functions. With control surface real estate at something of a premium, most of this is screen-controlled although the user-defined keys can be used to good effect. Up to six recorder returns can be summed and monitored via a matrix and Assign keys.

One function I couldn't find described anywhere in the manual is returning all four bands of an EQ to flat. After a bit of prodding around and head scratching I was delighted to discover that pressing the low and high band frequency/Q encoders together does the trick.

DM2000 offers a choice of two EQ algorithms: Type I is the same as the O series consoles and Type II is new. The differences are quite subtle and most noticeable when two or more bands interact. Type II is less clinical and arguably more musical. I hope Yamaha will provide further variants in future software versions (assuming the algorithms are not hard coded into the custom DSP chips). Dynamics can be pre EQ or pre or post fader adding to flexibility.

Make no mistake, getting the best out of this board will take time but from what I have seen and heard so far it will be well worth the investment. DM2000 isn't perfect, nothing is, but it does manage to be several consoles in one. With really rather good mic amps and proper 24-track recorder handling it is a real contender for tracking and mixing music. The surround capabilities, automated effects and DAW remote control make it a serious option for multimedia, games and sound for picture. The 22 x 8 output matrix gives four independent stereo outputs for cue feeds and zoning. Together with the snapshot automation this should make the DM2000 popular in high quality installation and theatre work.

In other words, this console really can be a 'jack of all trades'. To be master of any of them will require thorough exploration of its talents to develop strategies appropriate to the application. This is the principle difference between a multipurpose console and a dedicated one costing several times the DM2000's asking price.

To be picky there are a few other things I would have liked. Separate low and high pass filters in addition to the 4-band EQ, greater flexibility in the

surround monitoring, and the transport keys really should control the internal time code generator. Studio Manager needs a page to allow you to see what is going on in more than one hidden layer at a time. Apart from these, I am sure that every user will have their own wish list.

DM2000 is highly significant, not simply as a product in its own right, but for what it presages. Some DAW manufacturers would have you believe all you need is a control surface with the mix processing done by DSP cards within the host computer or even just by the computer's CPU. While this approach is demonstrably effective for some applications, it doesn't scale well to larger projects. One day, I'm sure it will be possible to achieve 96 full facility channels with plug-ins and recorder/editor functions piggybacked onto a PC or Mac but, realistically, why bother? By the time you add in the cost of a control surface, decent I-O, and sufficient processing to make it work reliably, there is little or no point. By recognising that consoles need to co-operate with DAWs and not simply co-exist, Yamaha is giving us the tools to redefine production processes. This will be a recursive exercise and the DM2000 is just the beginning. DAWs will also change dramatically.

With the DM2000, Yamaha has once again extended the art of the possible and thus redefined our expectations. 96 channels of 24/96 at this price level is a remarkable achievement. More to the point, this console sounds good. The analogue conversion is good, the new EQ is an improvement, as are the effects. The net result is tangibly better sound. ■

PROS Sheer bang for the buck; sweet sound for a digital console; DAW remote control, beginning of a new era?

CONS No separate high and low filters, just 4-band EQ; Studio Manager needs more screens; transport controls don't run internal LTC generator

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Surface highlights

Although fader pitch is relatively narrow, the 24 strips are divided into blocks of eight with separate Stereo output fader. Result? Grabbing the correct fader is intuitive. The faders are motorised with 'real' touch sense. Fader knobs are low profile and satisfyingly tactile. A great deal of thought has gone into making the control surface easy to grasp. For example, diamond-shaped keys are always used for display. Apart from the 16 display keys on the left of the screen, each functional group has its own display key.

Immediately above each fader bank, an electroluminescent display window shows pertinent information about each strip. It graphically indicates the value of the current encoder parameter, routing, EQ on/off, delay, comp and gate. Pressing and holding a channel Select key shows the channel ID, short name and long name across all eight displays. Each strip has the familiar On, Solo and Select keys with the addition of an Auto key. The rotary encoders are not touch sensitive but incorporate switches that punch the selected parameter in and out of automation write.

The rest of the surface is divided into function blocks. The equaliser section uses two encoders and a numeric display with three indicator LEDs per band. One encoder adjusts the gain and the other does double duty for frequency and Q – pressing the encoder knob switches between the two. The display defaults to displaying Frequency or Q. Gain is only displayed when adjusted and I would prefer gain as

The ins and outs

The first 24 channels are all equipped with XLR and jack inputs plus balanced jack insert send and returns. Control room monitors, large and small, and balanced stereo analogue outputs are all XLR. Balanced 2-track analogue 1 input and studio monitor out are on jacks. Unbalanced 2-track analogue 2 input and unbalanced stereo out are on phonos. The eight Omni outs are balanced jacks.

Three stereo digital I-Os each have independent sample rate convertors – two are XLR AES-EBU and the third is phono SPDIF. Two high-density 64-pin sub-Ds allow cascading of multiple consoles.

MIDI in, out and thru are supplemented by USB and serial 'to host' connections. The meter bridge connects on a 15-pin D-sub, while a 25-pin D-sub gives access to GPI functions and a 9-pin D-sub enables remote control of an optional Yamaha AD824 A-D convertor. The last of these is also the RS422 machine control port. BNC word clock connections are in, out plus a second out which outputs 48kHz clock when the console is working at 96kHz. MTC is DIN and LTC is balanced XLR. For labeling, a PS2 keyboard can be connected via a mini DIN.

Six mini YGDAI slots provide the bulk of the I-O. Yamaha produces a comprehensive list of cards covering analogue, ADAT, TDIF and AES-EBU formats at conventional sampling rates. There are now four 96kHz cards, analogue in, analogue out and AES-EBU with or without SRC. There is also an MLAN option. The DM2000 accepts the Apogee I-O cards and up to three of the excellent Waves Y56K effects and ADAT I-O cards.

the default display. Dynamics get their own dedicated section and five encoders control parameters of compression or gating.

The Aux/Matrix area uses four encoders to set send levels to Aux if a channel is currently selected or Matrix if an output is selected. A Bank key pages through the 12 aux sends.

In the surround block the most noticeable feature is the joystick. Used with the Grab key this works well and allows for very quick and precise positioning.

The section devoted to plug-ins controls the internal effects, graphic equalisers, or one or more Waves Y56K cards, or it controls user-defined plug-ins on an external DAW. With four encoders, under the screen, adjusting parameters is intuitive and fast.

Track arming has 24 independent keys for record tracks and four assignable group keys. Automix uses seven keys to control the internal automation or DAW automation in conjunction with the remote functions. A further seven keys select global parameters for automation. Sixteen user-defined keys allow for customisation, for example, monitor channel mutes and stem return selects in surround.

The Cursor and Enter keys lie in the transport control section and a smooth jog/shuttle wheel does double duty for parameter selection. Display History keys are a nice touch as these jump backwards and forwards up to eight pages in web browser fashion.

The DM2000 can control external machines via MMC or RS422. There is an internal time code generator but, curiously, this cannot be controlled by the transport keys. The only control seems to be on-screen in Automix or via user-defined keys.