KORG RADIAS

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Hands on Review of Korg RADIAS

   The Radias is described by Korg as a synth and vocoder, but that's somewhat modest — it manages to cram analogue modelling, S&S, FM and formant synthesis into its stylish frame, plus a host of sound-shaping and triggering facilities. Plus that vocoder...   Paul Nagle   The Radias module sitting centred in its optional RD-KB keyboard frame.
  If you wish, you can slide the Radias around from left to right to your   taste, and if you situate it at either the left or right extremes of the   keyboard frame, a blanking panel is supplied to fill the gap at the   opposite side of the frame, as you can see from the picture overleaf.   One of the most talked-about debuts at NAMM 2006 was the Radias from Korg. Oddly named and visually striking, the Radias is powered by 'Multi Modelling Technology' — a mixture of analogue modelling, PCM waveforms, a simplified FM implementation and formant (vocal-type) waves. We first saw MMT on the EMX1 Electribe, but Korg have taken things further for the Radias, plundering the mighty OASYS workstation to ensure the modelled analogue oscillators are low on aliasing, high in fat. Throw in a versatile filter section, a vocoder, powerful distortion and waveshaping, plus a virtual patch system and decent effects, and you have a stonking sound engine. If it's rhythmic fun and interaction you seek, there are drum kits, an arpeggiator and dual step sequencers. All this is housed in a body that bears a passing resemblence to the MS2000R synth — although in a splendid silver finish.
   Radi(c)al Thinking The Radias is available in two forms: as a stand-alone rack unit (the Radias R) or accompanied by a dedicated keyboard and rack frame, the RD-KB (shown connected to the Radias in the picture above). When racked, it occupies 4U of space, but as its connectors are not recessed, you need to allow at least another rack space above it for cable connections, which is a bit of a waste. This is made more irritating because the Radias has a lovely slimline design, perfect for slipping into a small mixer flightcase. The front panel is initially bewildering and you'd be forgiven for thinking 'Electribe' or 'Groovebox' as you gaze at pink lights, and knobs backlit with an orange glow. I personally found the knobs on the small side and packed rather too closely together for my fingers, which was a shame. Generally, though, once you get used to it, the user interface isn't too bad, and various shortcuts are employed that you soon come to appreciate. For example, the 16 trigger buttons along the bottom edge of the module serve multiple purposes, switching on trigger steps in the arpeggiator or sequencer, selecting pages in the menu system, or playing notes if the keyboard is not present. The 128 x 64 LCD is reasonably informative and navigation is logical, although some aspects could still be improved. For example, a small LED flashes when you turn a knob through its current stored value. This is fine for a simple piece of gear like an Electribe, but feels much too basic for a high-end instrument with a decent display. Why not show the old and new values on screen, as Access or Novation do? In fact, you don't even see the values on-screen at all unless you specifically go into Edit mode. This can be confusing — especially if you have configured the knobs to 'Catch' mode (to avoid any audible parameter leaps when tweaking a patch), because you are given no visual clue whether to turn the knob to the left or right in order to pass through the patch's stored value. When in Edit mode, turning a physical control takes you straight to the relevant Edit menu. Dedicated buttons are available to switch between Program or Drum Mode, or activate the vocoder. Despite the Radias's abundant multi-functionality, it only took me a few days before I was flying around confidently. I have to say my early progress was hampered, rather than helped, by the manual, which has no index and is strewn with frequent cross-references to other pages, making it a drag to read through. Other than its lack of recessed sockets, the rear panel contains the expected stuff. So, alongside the three MIDI ports is a USB connector that acts as a MIDI interface for your PC or Mac. The special connector for use with the optional RD-KB is here too, as is the on/off switch and connector for the external power adaptor. This adaptor, incidentally, is one of those with its own on/off switch, perfectly positioned to be caught by accident and cause all kinds of confusion in a live situation. It gets the thumbs down from me. Audio connectivity is courtesy of a master stereo pair plus two individual outputs — there's no digital I/O at all. External processing is one of the Radias's strong points, so two audio inputs are provided, plus a condenser mic input and a switch to select between condenser, line and dynamic mic types. As the optional keyboard has no controls of its own, there are two assignable pedal inputs on the module.   MMT = FAB? The Radias offers up to 24-note polyphony, which is acceptable but, these days, not over-generous. Various factors such as the oscillator waveform, unison, drive and the vocoder eat further into this allocation, although Korg are vague on the exact costs of each. There are 256 Programs in total, each consisting of up to four 'timbres'. And as there is no Multi or Combi mode, each of these timbres is what we'd typically call a Program or Patch. A timbre can be given its own key (but not velocity) range and MIDI channel and can be triggered by the arpeggiator or sequencer before being sent on its way via a two-channel EQ and two dedicated effects. Each timbre is finally directed to the main stereo outputs through the master effects processor. Interestingly, a timbre can be positioned anywhere between the main output and the individual outputs — that is, instead of assigning it wholesale to individual outputs, you can assign in proportions, so that, say, 70 percent of a signal passes through the main outputs, and the other 30 percent passes through the individual outs, all without altering the left-right panning position (which can still be set separately). Seen previously on synths like Access's Virus, this can be used for quadraphonic panning and would be of great value in a surround system. It's just a shame that you can't modulate the position between the outputs with a mod sequencer or the virtual patch system. Programs are organised into 16 banks of 16 (A to P), selectable either via the buttons, data-entry knob or by category (with 16 to choose from). A quick play through the factory sounds may make you feel you're a terrible programmer (it did me); I was especially impressed with the anthemic trance creations that you can easily imagine doing the business at parties or festivals.   Here the Radias has been slid to the left end of the frame, and the   blanking panel placed on the right so that a laptop can be used   alongside the module.   Although there

are some classy factory sounds, Korg clearly intend you to program your own as quickly and intuitively as possible. To this end, 128 templates are supplied with names such as 'Sub Bass', 'Trance Pad' and 'Windstorm' to point the way. As you gain expertise, you can replace these templates with your own — a neat idea that genuinely speeds up patch creation. Some aspects of the OS do slow you down slightly. For example, you can't set MIDI channels, outputs, key-ranges and other timbre parameters unless they are currently active. Worse, I occasionally misread the mode I was in (the Edit button is just one glowing pink button amongst many) and tried to hit a button to access a menu page, only to change patches instead and lose work in progress. So it might be nice if the Radias had an edit buffer to prevent this kind of accident, especially in a live context. Whilst I'm asking for things, it occurred to me how much nicer it would be if, when storing a patch, I could see the name of the patch in the destination slot rather than merely its number. If you begin your programming adventure with a single timbre, you soon discover a highly sophisticated synth engine beneath the flashing, occasionally dazzling facade. Although the Radias conforms to the standard oscillator/filter/amplifier model, each of these stages boasts some very sophisticated enhancements. Let's take a quick tour starting with Oscillator 1 — the more complex of the two present. Its panel features two Osc Mod controls that perform different duties according to the waveform selected. Above these are wave selector buttons offering the modelled 'traditional' waveform types (saw, square, triangle and sine). But there's also the Formant wave, which mimics tones created by a human mouth. Choose this waveform and the first Osc Mod control sets mouth shape (and hence the vowel sound produced) whilst the second sets mouth size. The remaining choices are noise, synth or drum PCM waveforms, or the audio input. Inclusion of sampled waveforms is a real bonus, previously seen in such synths as the Novation KS series. The Radias has 64 of these samples, including electric pianos, organs, strings, choirs, guitars and some very useable electric and acoustic basses. If you get the chance, check out Radias programs G12: 'A.Guitar', H08: 'Organ Bass', J13: 'Big Bee' (cool organ and drum accompaniment) and L03: 'Acid Jazz' (featuring impressive acoustic bass and electric piano) to see how useful they can be. As well as the Synth PCM section, there are 128 drum samples onboard. The emphasis is on kicks and snares, but you'll also find a tabla, djembe, and various Wavestation-like voice segments. You can use these sounds in your patch creation but the Radias also provides a separate Drum mode for building complete kits, which we'll come to later. For now I'd like to consider some of the remaining Osc Mod options. Waveform modulation is fairly straightforward and accounts for warping and pulse-width modulation of the analogue waves. Cross modulation is ideal for harsher, often atonal stuff, whereas Unison simulates the rich, detuned sound of five oscillators but without affecting polyphony (unlike the dedicated Unison button, which stacks Radias voices). Finally, VPM is Korg's version of FM synthesis, and recalls the sounds of Yamaha's 1980s DX synths. Already you can see there's tremendous scope for tonal variety — and that's just from Oscillator 1! It's forgivable that the second oscillator is simpler — it offers just modelled analogue waveforms, plus tuning controls (which, incidentally, Oscillator 1 lacks) and a trimmed-down modulation section. However, even here useful tools are found, in the form of ring modulation and oscillator sync. These can be combined to form 'RingSync', which is biting and slightly nasty! The twin-filter arrangement is very versatile, not least because Filter 1 offers a continuously variable multi mode capable of sweeping through 24dB-per-octave low-pass and 12dB-per-octave low-pass, high-pass, and band-pass types (or Thru mode, which is equivalent to turning the filter off). Filter routing may be configured as Single (ie. only Filter 1 is active), Serial (the output of Filter 1 passes into Filter 2), Parallel (both filters process both oscillators) and Individual (Oscillator 1 is routed to Filter 1, Oscillator 2 to Filter 2). It doesn't quite match the flexibility of, say, the Alesis Ion (and there's no balance control between filters, as on Access's Virus) but it's as versatile as you'll need for most applications. Filter 2 lacks the smooth fade between filter types, and offers just 12dB-per-octave low-, high- and band-pass filters, but adds a comb filter. This is rather nifty and responsible for all manner of metallic chorus or rich flanging effects (check out patch F10: 'CombZilla' if you can). The Radias module detached from its optional keyboard. Having concentrated on the oscillators and filters, I'll quickly note that there are two LFOs and three envelopes. The first two envelopes have dedicated knobs for control of filter and amplifier, whilst Envelope 3's role is freely assignable. I must draw your attention to the configurable decay/release curve of the envelopes. Decay is one of the most significant components of a bass line or a fast sequence and a synthesizer with only a linear decay will never reproduce those satisfying blips that many of us crave. With five separate curves available, this will never be an issue with the Radias. Staying on the subject of bass for a moment, check out the patches N07: 'Tek Seq Bass' and D08: 'Pulse Bass' if you don't believe a modelled analogue can hold its own in the lower regions! The end of the synthesis chain is the amplifier section and this one is a little different, courtesy of the Drive/Waveshaper selector. Choosing the first of these overdrives the output in a way that sounds refreshingly warm and natural, while various options lurk in the Waveshaper, including a decimator (lo-fi mayhem!), electric pickup simulator, various sub-oscillators, and more. Waveshaping gives you lots of variations on waveform distortion — many of which you might actually use. Signals can be passed through the Drive or Waveshaper either before or after they pass through Filter 1; if you choose 'before', you can then tame some of the harsher distortion with a low-pass filter. As well as the aforementioned option to split the output of a sound proportionally between the two pairs of outputs, you also have the option to send the output of the timbre to an internal buss. This can then become either a carrier or modulator in the vocoder, or be used to drive the envelope follower. This envelope follower is 'common' amongst all the timbres, so it can be employed for various triggering and modulation duties. Interestingly, it can also trigger notes or chords of up to eight notes from a variety of input sources. You could use it to trigger a Radias kick from an external audio source, to take just one example. The remainder of the synth engine isn't without its charms, either. There are five different portamento curves, giving ample variation in response and playability. And if you wish to depart from well-tempered scales, there are 10 alternatives available, including a user scale. Naturally, the Radias may be played polyphonically or monophonically, with the usual mono options of low-, high- and last-note priority as well as single (legato) or multi triggering. The 'virtual patching' system seen on the MS2000 is present too: up to six separate modulation sources can be assigned to various destinations. And if Korg's implementation of this may seem simplistic

when compared to that of Alesis, Access or Waldorf, at least it is quick and easy to use. It has just 15 possible sources (five of which are incoming MIDI CCs) and a mere 15 destinations. I'd have hoped that all the front-panel knobs could be modulated, but this is not so. You can't modulate the effects parameters, for example, but you can modulate parameters such as Filter 1 type and Oscillator 1's first control knob, although not the second. SKeyboard Cape Supplied with the review model was the RD-KB — a distinctive four-octave keyboard with an integral aluminium frame and tilting rack to house the Radias module. Although light, the tilting mechanism works well enough and feels reasonably substantial once the module is fitted. Having done this, you can either lie the synth down flat or position it at a fixed angle of approximately 55 degrees (my estimate). The module is able to slide freely from left to right, so you can position it wherever feels most comfortable. And if you position it to the extreme left or right, the supplied flat metal plate will fit in neatly so that you can add a Kaoss Pad, Electribe or laptop (as shown on the previous page). I thought the keyboard looked fairly stylish, albeit perhaps a little 'Cyberman-like' with its plain, functional silver curves. There were a couple of pointless bits of wood grafted on that seemed present purely to tick the 'classic synth needs wood' box, but generally I thought the whole unit looked rather cool. However the keyboard itself is rather basic and performance controls, in particular, are at a minumum. It has a pitch bender and modulation wheel, but that's your lot. The keyboard doesn't have aftertouch or a MIDI socket, which was a surprise. In fact, Korg have fitted the Radias and its keyboard with a small nine-pin connecting cable, rendering the RD-KB useless with other MIDI instruments (it doesn't even have its own power supply, so you'd better not misplace this cable!). Personally, I think Korg should have gone the whole hog and made the keyboard into a self-contained flightcase. Due to the tilting frame and space required for the module to lie flat, it takes up quite a bit of space, although I concede it's a relatively inexpensive, good-looking add-on. Vocoder & Drums Korg products have often incorporated vocoders innovatively, and the Radias is no exception. This vocoder has 16 bands, each with individual Level and Pan controls. A button selects whether the Radias's row of 16 knobs will adjust the individual vocoder band levels or their panning. But the best part is the Formant Motion function. This is a means of recording phrases, or any chunk of incoming formant information, and storing it for mic-free use later. Unlike samples, formant motions always play back at the same pitch/tempo they were recorded. Some of the factory sounds are used to cheesily extol the power of the Radias and will be amongst the first to be replaced when you get it home! Korg suggest ideal formant sources might include the spoken word or jazzy scat singing, but I got equally dramatic results from explosions, drum loops and short-wave radio noises. You can store 16 separate formant recordings (automatically named 'Motion01' to 'Motion16'), each of up to 7.5 seconds. Having made the vocoder active, many of its functions can be operated by the panel knobs, denoted by the black-framed panel labels. Or you can navigate via the usual menu system that will take you through the Modulator, Filter and Carrier pages. In these pages, you select one or two (merged) Carrier inputs from any timbre, External Input 1 or the internal buss. The Modulator takes its input from either External Input 2 or, again, the internal buss. If you require traditional vocoder effects, you connect a microphone to External Input 2, specify the Carrier as an existing timbre and speak, sing, gargle or grunt to your heart's content. There are some nice Kraftwerky sounds already on board and, apparently, a headset microphone is planned for inclusion with the Radias, although it wasn't supplied in time for this review. There are 32 drum kits on board, each consisting of 16 PCM samples assigned to a different note on the keyboard (or the 16 step buttons if you're working with the module alone). Typically you'd source each drum from the 128 drum PCM waves of Oscillator 1, but the Radias doesn't force you to do this. Drum voices can be made using any part of the synthesis engine — and therefore you can concoct some radical electronic kits, as previously heard on the marvellous ER1 Electribe. However, the Radias does it better — as hinted at in the excellent selection of factory kits. The only niggle is that for some reason, you can specify only a single timbre to hold a drum kit. Step & Mod Sequencers The Radias features two step sequencers, each up to 32 steps in length (they can also be combined to form a single 64-step sequence). Unlike their CV/Gate ancestors, these sequencers are up to eight-note polyphonic and are recorded in step time from MIDI input. A button is provided for rests or ties, but otherwise you just bang in the notes and let the Radias worry about their timing. During playback you can change whether individual steps of the sequence are active or not with the 16 front-panel buttons. Each sequence has its own length, direction and time base, so even with just two of them you can produce some complex-sounding patterns. Unusually, you can clock the sequence using incoming notes by setting the Runmode parameter to 'step' — one offshoot of this might be to use the envelope follower and the internal buss system to step through your pattern using audio triggers generated by another timbre. In addition to the two note sequencers, each timbre features three modulation sequencers. In brief, a modulation sequencer can control most of the continuously variable Radias parameters, although not all. Mod sequences share a common length, direction and resolution, a fact that reduces their appeal slightly. Each can output smooth or stepped controller curves and offers an easy way to introduce evolving changes to a plain note sequence, for example. Modulation sequences can be recorded in real time, simply by selecting the sequence to use, holding the Rec button and turning a knob, or you can set the values with the 16 knobs directly. Taken as a package, the Radias sequencers are fun and mildly diverting, although they lack the kind of interactivity and addictive complexity found on synths such as Dave Smith's Evolver, or stand-alone hardware step sequencers. Arpeggiator & Effects The arpeggiator contains many typical features including five selectable directions, range, clock resolution and swing, and it can be confined to specific regions of the keyboard. Combine it with a couple of note sequences with sync'ed delay effects on each timbre and you can happily noodle away for hours. A dedicated Latch button ensures the noodling can continue even when you need to go and get a beer, or something to eat, or attend a few classes. In common with the step sequencer, you can set the active steps, overall pattern length and the duration and velocity of individual steps in real time, for even greater performance gratification. Annoyingly, though, when you stop the arpeggiator it also stops any step sequencers that may be active in other timbres. The Radias has a fairly conventional back panel, with the usual MIDI trio, USB connector, and quartet of outputs, plus a stereo input pair with one switchable input level — but there are one or two oddities. Firstly,

there's that non-standard power supply socket on the left, then   there's the 'To Kybd' connector in the centre, which, as the cryptic   abbreviation suggests, is where the multi-pin cable goes which connects   the module to the optional keyboard.   Finally,   there's a dedicated capacitor mic input.   Each timbre has a two-channel EQ plus two insert effects. Here Korg have really excelled, with 30 different types available. Many of the effects parameters can be assigned for panel control, with two knobs (per insert effect) for those you deem most important. A button toggles which of the effects is currently tweakable. Finally, there is a master effects section, also with an assignable control knob. The effects encompass a wide and varied range, including a compressor, stereo filter, distortion, tube simulations, reverbs and various delays (including tape echo). The list continues with a flanger, chorus, phaser, pitch-shifter, ring mod, tremolo, vibrato, rotary speaker, and odder types such as 'talking mod' and 'grain shifter'. The latter is a particular favourite of mine from the ESX1 Electribe (although it sounds cleaner here); I often use it to warp sounds so they resemble the artifacts of low-quality time-stretching. The overall quality of the effects is well up to scratch — the reverb easily trounces the metallic squawk of my Electribe, for example. As with other areas of the Radias, effects templates are available to speed up programming or to simply allow you to save your favourite settings for quick retrieval in any patch. There are some restrictions on usage, though, based on the DSP required for specific effects. So 'Rotary Speaker', for example, is a 'double-sized' effect, and if it's used as Insert Effect 1, no effect can be used as Effect 2. Similarly, some parameters are available when the effect is used as an insert, but are unavailable when it's used as a master effect. And if you use two insert effects that incorporate a delay time parameter, the maximum overall delay time is reduced to one second. Perhaps the biggest single drawback is that the master effect is global — there are no individual send levels for each timbre.   Software The Radias is supplied with Mac/PC editing software, plus a USB driver for connection to a computer if you don't have a MIDI interface. Actually, I couldn't get the USB driver supplied with the review Radias to work on my PC, but I did connect via the five-pin MIDI sockets without any problems. The software renders some tasks much, much easier than on the synth itself. For example, you can remap every knob to the MIDI continuous controller number of your choice — a superb feature that all synths should have in my opinion — and the ability to view and edit all assignments on a single screen is nothing short of brilliant. All the edit screens are clear and straightforward, and perhaps the strongest point of the software is that you can grasp the true depth of the Radias clearly, without excessive flashiness. The visual effect of the formant waves is both cool and informative, and you can even perform some basic editing of these, such as normalising and trimming. You can also compile your own library of formant motion recordings on disk to import whenever you like. I'd have loved to see a means of importing samples and converting them to formant motion directly, but perhaps I'm just being greedy... Conclusions The Radias is a jack of all trades and can be treated equally as a souped-up Electribe or a well-specified modelling synth. Either way, it sounds fantastic, cramming in a whole host of interactive and innovative features, with only the occasional over-simplification. The filters are superb, and being able to continuously sweep between different filter types is a creative yet uncomplicated way to generate new sounds and textures. The modelled analogue oscillators are awesome, and the inclusion of other oscillator types, samples and drum kits opens up a vast number of options from remarkably few panel controls. For live performance, the included step sequencers, mod sequencers and arpeggiator are also handy. The good stuff keeps coming. For example, the vocoder is a class act. I've heard others with more features, more bands, and more bells and whistles that still don't sound half as musical as this one. And you might initially write off the storing of user formant data as a gimmick, but it most definitely isn't — not only can you use 16 of your own phrases to drive the vocoder, but there's no reason to restrict yourself to vocal recordings at all. I wonder if, perhaps, Korg are already at work on a bigger Radias (codenamed 'Diamater', 'Circumferance' or some other warped spelling, perhaps) with fully-fledged sampling? This seems like the logical next step to me. Whether many will feel the keyboard adds anything worthwhile to the system, I don't know. But at least it's relatively affordable and its unusual connectivity leaves the MIDI input free to accept external MIDI clock signals. So often with modules, you need a MIDI merge to combine clock and keyboard; Korg at least avoid this pitfall. To round things up, I was most impressed with the Radias's synthesis, drums, effects and vocoder. I'm still not too sure whether it is intended to compete with a fully-fledged modelling synthesizer such as the Access Virus TI, but sonically it competes pretty well. Ultimately, how a synth is categorised matters less than what it can do for you. I think if the Radias's price tag were just a little lower, it would make an even more tempting addition to any system: it has ways to slot into almost any niche. This versatility could see it make a lot of friends — as it has with me!