

Creamware SCOPE

Open-ended DSP Platform

Creamware's SCOPE Fusion Platform is a powerful and flexible PC and Mac-based music-production system that's often overlooked by computer-based musicians. We take a detailed look at the system and investigate what you might be missing.

Mark Wherry

In 2002, Creamware, a company based in an old radio telescope in Sieburg, Germany, celebrated its 10th anniversary — but despite this longevity, Creamware's product line remains a mystery to many musicians, especially in the UK. While most computer-based musicians will be familiar with the name Creamware, relatively few know exactly what its product line offers — a situation that hasn't always been helped by Creamware's often confusingly similar products and bewildering array of options (you can find an attempt to explain these in the 'Meet The Family' box on page 102). Indeed, when we interviewed top film composer Hans Zimmer recently, he described

Creamware products as his secret weapon, "which nobody seems to know about".

At the heart of Creamware's product line is the SCOPE Fusion Platform (SFP), which consists of hardware featuring audio and MIDI I/O, and a varying number of Analog Devices SHARC Digital Signal Processor (DSP) chips that can be programmed from a software front-end running on an ordinary Mac or Windows computer. Although the user interface is powered by the host computer, much like a DSP-based Pro Tools system, all of the signal processing is handled by the DSP processors on the SFP's hardware, which currently takes the form of a family of PCI cards, and is soon to be joined by Noah, an external device that can also run in a stand-alone mode without a computer.

As you can probably guess, all manner of mixers, effects and instruments have been developed for the SFP, both by Creamware and third parties, although it's important to point out the obvious: the code used to run SFP software is specially written for the SHARC DSPs, meaning the SFP won't be able to run software written to run on your computer's Intel or Motorola host processor. However, this isn't a problem, as one of the strengths of Creamware's SFP is the way it can integrate with your current music software and run all your host-based instruments and effects *alongside* the DSP-based SCOPE software.

For this review, we were initially sent one of the low-end Luna II cards. Later, we received a Power Pulsar Z-Link system running version 3.1c of the SFP with all the optional software that Creamware currently have available. As you'll see from that 'Meet The Family' box, the only difference between the Power Pulsar with all optional software and the premium SCOPE/SP product is the Sync Plate, for word clock and ADAT 9-pin sync connections. We were also sent an A16 Ultra, Creamware's high-end 16-channel A-D and D-A converter, which connects via two Z-Link connections to the card you're using (for more on the A16, see the box on page 106). Z-Link is a Creamware proprietary protocol that uses a Firewire-based connection to send and receive eight channels of audio at a 24-bit resolution and 96kHz sampling rate. Finally, I was able to press my old 1999-vintage Pulsar I card into service during the review as well (see the 'Please Sir' box elsewhere in this article).



The SCOPE Fusion Platform system in use. Here, a sequence in *Nuendo* is triggering three *Inferno* synths and an *EDS8i* drum synth, with their outputs being routed into an *SM2448* mixer with the output from *Gigastudio*. There isn't another system on the planet that makes this possible. Above is one of the SCOPE cards that drives the system (this is the I/O-less Sonic Rocket Booster).

Creamware SCOPE Fusion Platform

pros

- Incredibly flexible routing system, with excellent driver support and integration with host-based applications.
- The best-sounding virtual synths available for any computer-based system.
- Backwardly compatible and expandable, compared with other manufacturers whose new systems require the old ones to be replaced.

cons

- There are better alternatives to some of the SFP's effects and samplers.
- The cost of the higher-end systems might be prohibitive for some.
- The SFP will leave you with a bad case of DSP lust.

summary

If you've reached the limits of host-based processing, Creamware's SCOPE Fusion Platform provides new avenues of exploration, with unparalleled flexibility, incredible synths and much more. Once you've

had an SFP card in your computer, I think it's unlikely you'll ever want to be without one again.

SOUND ON SOUND

Latency

Every digital process takes an amount of time to complete its operation, but the SCOPE is affected by this fact no more than any other DSP-powered mixer or synth you may already use, and you won't notice any latency using the devices that run on the SFP's DSP chips. However, like any other soundcard, the buffers used to send audio from an ASIO application or Gigastudio have the potential to introduce more noticeable latency when using host-based effects and instruments.

Creamware products have always been pretty good when it comes to driver-based latency — the original Pulsar card, reviewed back in SOS March 1999, can be set to 13ms at 44.1kHz using the latest v3.1 SFP software, which is the lowest setting you'd want for attempting any serious work, but is still impressive considering that product's vintage in the technology world. However, the second generation of Pulsar products (including Pulsar II and all the current hardware offerings) feature what Creamware call ULLI — Ultra Low Latency Interface. Aside from sounding like the name of your German best mate, what ULLI means in practical terms is latency as low as 1ms at 96kHz, or 3ms at 44.1kHz.

Latency has never been an issue for me with Creamware products: with the Power Pulsar system under review, I just set it to the lowest setting and forgot about it. The only time you have to be slightly more conscious of latency is when you're routing between different software driver models, such as routing the output of *Gigastudio* into an ASIO application, as described earlier. Because the latency setting is effectively a one-way ticket in or out of one driver model, the latency would be doubled for *Gigastudio*'s output when routed through an ASIO application, since the output of *Gigastudio* is affected by the 3ms buffer going into the ASIO application, and another 3ms when combined with the overall output from the ASIO application — 6ms in total. This really isn't a big issue when you're dealing with such low values, but if the latency is set to 13ms, for example, it means an unplayable 26ms for *Gigastudio* in the scenario described. However, this isn't really a criticism, as even Creamware are bound by what's possible from a technical perspective in a DSP environment.

And Away We Go

Installing Power Pulsar was a piece of cake, although I think it's safe to say that when it comes to full-length PCI cards, Creamware's 15-chip Power Pulsar and SCOPE/SP cards take the definition to new extremes. You'll need to make sure you have a standard ATX-sized case with a clear run to the back on one of the lower PCI slots to install the larger card. However, I've had no problem in fitting the smaller Pulsar card into a Micro-ATX case before now, and the Luna II card is no bigger than most ordinary audio cards.

With the card installed physically, I switched on the computer and, as expected, Windows politely informed me it had found a new card, and the New Hardware Wizard appeared to find out where I wanted it to look for the appropriate drivers. After inserting the Windows installation CD-ROM (both Mac and Windows discs are provided), the drivers were installed and I was ready to go ahead and install the main *SCOPE Fusion Platform (SFP)* software.

The SFP installer contains everything from the software needed for a simple system based around the Luna II card, right up to the full SCOPE/SP package, and in order to deal with the issue of piracy, every software component is protected by an authorisation code that's tied to the serial number of the Creamware board you're installing. After selecting the card for which the SFP software is to be installed, you could enter the series of codes printed on the label inside your installation manual. I say could because Creamware have provided a far more sensible alternative. When you register your card on Creamware's web site, you can download a small text file (just a couple of kilobytes in size) containing all the authorisation codes for the products you're currently licensed to run (including any additional products you might have purchased from Creamware's on-line shop), which can be imported into the installer with a few clicks of the mouse. This is a brilliant idea; for once you feel as if the manufacturer has done everything possible to make sure the copy protection really is as painless as possible.

After specifying a directory where VST plug-ins can be installed if required (see the 'I'm In XTC' box), the installer will beaver away for 10 minutes or so copying all the necessary files to your computer, before prompting you to launch the main SFP software for the first time. When you restart, the SFP software will run automatically, and you'll notice an SFP icon appearing in the Taskbar's System Tray, providing access to the main windows.

Meet The Family

The Power Pulsar card we were sent for review is just one of many cards that are part of Creamware's SFP platform. If you're on a budget, the baby of the family is the Luna II (right), which features three DSP chips, stereo analogue I/O via quarter-inch jacks, co-axial S/PDIF I/O, MIDI I/O and Z-Link. I played around with a Luna II on one of my machines prior to this review and found it to be perhaps the best soundcard for the composer who's working on a single workstation. While the three DSP chips are soon exhausted, there's enough power for low-latency operation, the extensive signal routing (ideal for anyone looking to use *Gigastudio* on the same machine), a good reverb, and a few other effects or maybe a synth.



In terms of software, the Luna II is bundled with the main *Studio Tools* package, *Vocodiser* and, for Windows users, *Volkszämpler*. However, the Luna II is also available in the guise of Creamware's Power Sampler system, which is basically the Luna II card with the optional *STS* sampling software range. If you need more audio input and output options with the Luna II, Creamware offer a 16-channel ADAT I/O expansion board, which is included with either a Luna II EX or Power Sampler II EX bundle. However, if additional analogue I/O is what you're after, there's the Luna 2496 I/O Box that connects to the Luna's Z-Link port and provides eight unbalanced RCA ins and outs.

When you want something a little more powerful than the Luna, the six-DSP chip Pulsar II (left) is the ideal mid-range choice, available with one of four I/O configurations: Classic 20, Plus, 24 ADAT and Z-Link. [*Deep Breath*

— *Ed*]. Classic 20 supports 20 simultaneous input and output channels via stereo analogue I/O (on unbalanced RCA jacks), 16-channel ADAT I/O, S/PDIF I/O (co-axial or optical, in place of one ADAT pair), along with MIDI I/O. Plus has the same 20 I/O channels and MIDI I/O as Classic 20, but the analogue I/O is via balanced XLR connectors, and while optical S/PDIF can be made available through one of the ADAT ports, co-axial S/PDIF is replaced with AES/EBU. 24 ADAT features 24 channels of I/O comprising, as you might expect, three ADAT pairs, and also features two MIDI In, Out and Thru ports. Finally, Z-Link provides 28 channels and MIDI I/O, similar to Classic 20, but with only one ADAT pair and two Z-Link connections. [*Phew*].



If you already have a soundcard and audio system you're quite happy with, but would like to have access to the synths and effects of the SCOPE (or, alternatively, you want to add more DSP chips to your existing SCOPE system), Creamware also offers Pulsar XTC, which is basically a six-DSP chip Pulsar II card without the audio or MIDI I/O. On its own, this card runs exclusively in XTC mode (see the 'I'm In XTC' box later in this article).

The Pulsar II includes the main *Studio Tools* package, *Mixer Package 1*, both *Effects* and *Synthesizer* packages, *Modular 2*, and the *Volkszämpler* (Windows only), as well as the *STS2000P* and *STS3000* samplers. The Pulsar XTC has an almost identical software bundle, except you don't get *Modular 2* or *Mixer Package 1*.

At the higher end of Creamware's range you have the Power Pulsar and SCOPE/SP systems, which are essentially based around the same 15-DSP chip card — the difference is that the SCOPE/SP includes additional software and the Sync Plate expansion. This adds BNC word-clock and ADAT nine-pin inputs and outputs, and is also available for other Creamware systems.

Both the Power Pulsar and SCOPE/SP systems are available with the same four I/O configurations as the Pulsar II (the SCOPE ADAT card is shown above), and just as the Pulsar II card is available as a DSP card without any I/O (in the form of the Pulsar XTC), the 15-chip card is also available purely as a DSP card in the guise of the SCOPE SRB (Sonic Rocket Booster), which is shown on the opening page of this article. As you might expect, the SCOPE SRB adds another 15 DSP chips to your system, without having to pay for I/O and extra software licenses you won't need if you bought another Power Pulsar or SCOPE/SP card for the additional DSP chips instead. Have a look at the 'Please Sir, I'd Like Some More!' box over the page for information about connecting multiple SFP cards in one system. Power Pulsar includes the same software bundle as the Pulsar II system, while SCOPE/SP includes basically everything mentioned in this review, with the exception of the optional extras such as *Modular 3*, *Minimax*, *Vintage Compressor* and *Six String*.



While the sheer number of options available for Creamware's products can initially seem overwhelming, this flexibility means you can specify a system that's ideally suited to your DSP and I/O requirements.

Any Way You Want To Route It

The *SFP* software allows you to take full control over all the logical elements of the system, such as the audio and MIDI I/O, the mixers, effects and instruments, and a Routing window (below) allows you to patch all the devices together using virtual cables in much the way you would program a modular synth or use *Logic*'s Environment window. In previous versions of the *SFP* software, the user was *only* provided with the Routing window, and while this provides great flexibility, it was often daunting to new users, making simple tasks (such as changing the audio output to which a synth is routed) more complicated than they needed to be.

To address these issues, Creamware introduced the Live Bar in version 3.1, which is now the main window of the *SFP* software, providing information about the devices currently in use in a list format, with convenient access to the most commonly required settings, such as the signal routing. Additional pages are available to access a list of the inputs and outputs available, and the Live Bar can be left on screen as a floating window, which is especially handy when you're running other applications alongside the *SFP* software. The user interface for each device is accessed by simply double-clicking the device on either the Routing window or the Live Bar, and you can resize the Live Bar so it only shows the icons, providing easy access to the devices' virtual front panels.

When the *SFP* software launches, a default project is loaded (you can later save your own default project) to get you started, with the available inputs routed to a basic mixer, and the output of the mixer routed to the main outputs on the hardware. Adding a device to this virtual studio is a simple matter of either clicking in the Live Bar and choosing the required device, or choosing from one of the menu titles along the top of the Routing window. The software makes a reasonable attempt at patching the device into your current project

— a synth would automatically have its MIDI input connected to the hardware MIDI interface and its audio — although it's easy to change this initial configuration in either the Routing window or the Live Bar.

Because the *SFP* software can act as such a self-contained system, you could just leave the *SFP* software running on one computer and use it as a stand-alone workstation; but where the *SFP* really starts to shine is in its ability to integrate with your sequencer and any other host-based music software. Drivers are provided for ASIO, GSIF (for *Gigastudio*), Triple DAT (for Creamware's hard disk recording software) and DirectSound, MME and Sound Manager, and brilliantly, these driver models are presented as input and output devices on the Routing window and Live Bar, just like the physical audio and MIDI I/O on the *SFP* hardware, and can be used simultaneously.

I'd just like to underscore this point, because the ability to support multiple driver models and allow you to route the signals to and from these drivers through any other part of the *SFP* is incredibly useful. For example, running *Gigastudio* and a sequencer which uses VST instruments (such as *Cubase SX*) on the same computer is always something of a pain, especially when you want the overall output of the two applications to be mixed internally and come out of the same physical output on your soundcard. But with the *SFP* software, this is a piece of cake, because you can route your ASIO and GSIF output to a mixer device (and even add some reverb while you're at it) and have this mixed to your master output. You could even route your GSIF output back into an ASIO input for bouncing, or even route the whole master output back into your ASIO input for recording the final mix.

OS X Support

While the current version of the SCOPE Fusion Platform is compatible with all flavours of Windows and Mac OS 9, support for Mac OS X won't be added until the release of version 4 of the *SFP* software later this year. The reason for this apparent delay is understandable. As Creamware have explained, to get their range of cards working on OS X requires more than just writing suitable drivers — they have to port the entire *SFP* software, which takes a great deal of time in terms of development and testing. So while it's annoying for Mac *SFP* users looking to move to OS X, it makes more sense for OS X support to be included in the next major version of the software.

The routing possibilities afforded by the *SFP* are endless, and because the I/O from the drivers isn't hardwired to the physical I/O on the hardware, you can even specify how many inputs and outputs you want each driver to provide (in stereo pairs) from two to 32 for *Gigastudio*, and two to 64 for ASIO. This means that you could route 96 simultaneous outputs from both *Gigastudio* and your ASIO application of choice, for example, and mix entirely in the *SFP* software. Alternatively, with your ASIO application, you could use these virtual ins and outs as send and return busses to the SCOPE effects.

It's worth pointing out that the SCOPE system itself includes a selection of ASIO drivers, which are represented as different devices available within the *SFP* software. For example, the default ASIO devices support a 16-bit resolution and 32 channels, but other *SFP* ASIO devices allow for ASIO 2 support, up to 64 channels, and 24-bit or 32-bit resolution, which require slightly more resources because there is simply more data to move around the system. The 32-bit support is particularly useful since this saves your ASIO output from having to be truncated or dithered in the ASIO application, allowing it to be processed directly into the 32-bit *SFP* environment and back into the ASIO application at 32-bit for mastering, for example.

If the SCOPE Fusion Platform was nothing more than an exotic routing system, I'd still want an *SFP*-compatible card in at least one of my studio's computers. The fact that this routing flexibility is only the beginning of what's possible and enhances the use of all the other devices, such as mixers, instruments and effects, only serves to make the system more appealing.

Please Sir, I'd Like Some More!

If even the Power Pulsar or SCOPE/SP's 15 DSP chips aren't enough for you, it's possible for a maximum of three cards to be used in one system by using Creamware's S/TDM (SCOPE Time Division Multiplexing) buss, potentially giving you access to a maximum of 45 DSP chips. The cards are installed as usual in your computer's PCI slots, but in order to use them as one, an additional S/TDM connector is used to connect the upper edge connectors found on each card.

To put a multiple-card system to the test, I installed my old circa-1999 Pulsar I card alongside the Power Pulsar card. Creamware recommend using the middle PCI slots, but since I'd already installed the Power Pulsar in a lower slot, I thought I'd leave it where it was in the interests of journalistic discovery — in other words, I was too lazy to change it! I installed the Pulsar card below the Power Pulsar and used an S/TDM connector to connect the boards together as described in the installation manual. The manual shows perfectly lined up S/TDM connections, but in practice, the ribbon cable does need to twist slightly in order for the connections to be made.

Once I booted up the computer again, Windows prompted me to install the Pulsar drivers. The installation manual states that it's fine for multiple Creamware cards to share the same IRQ (so long as no *other* resource shares that IRQ), but since I was running Windows XP with ACPI enabled, I didn't have much choice in the matter. Following the instructions provided, you next have to close the *SFP* software (if it's running) and make some manual adjustments to one of the *SFP* configuration files — this is painless, but I can't help thinking a Windows front end would be better.

When I opened the *SFP* software again, I was prompted for the authorisation code for the Pulsar board, which was taken care of by importing my old 'allkeys.skf' file, and after that the *SFP* software launched, recognising the two cards with all the relevant hardware I/O and the 19 available DSP chips, as you can see from the screen capture above. A simple test to confirm that the system was working was to play *Minimax* from one card's MIDI input with the audio output coming from the other card — and everything worked fine.

Aside from having to manually edit a configuration file, the use of S/TDM seems incredibly well-thought-out and implemented. The fact I could use a four-year-old Pulsar I card with a brand new Power Pulsar is particularly commendable, and it means that your investment is protected. For example, if you can only afford a Luna II card now, you could add a second Luna II card later to get the same DSP power as a Pulsar II, along with extra audio and MIDI I/O.

Get Your Kicks On The A16

If you opt for the Z-Link interface option on your Pulsar, Power Pulsar or SCOPE/SP card, you can later add an additional 16 channels of analogue or digital I/O, thanks to Creamware's A16 16-channel 24-bit/96kHz A-D/D-A converter, which connects to your card via two supplied Firewire cables. The A16 features 16 balanced quarter-inch jack inputs or outputs, two ADAT I/O pairs, which support S/MUX for 96kHz operation, and BNC word-clock I/O. Each channel on the A16 has a five-segment VU meter on the front panel and the unit supports a range of sample rates (32, 44.1, 48, 88.2 and 96kHz) and synchronisation options. Additionally, the A16 has a built-in memory so your last settings are automatically recalled, and if the unit encounters a sample-rate or synchronisation error, it will automatically mute itself to save your speakers and your sanity, indicating an error on the front panel.

Although Z-Link is essentially a Firewire interface, you can't plug a Z-Link interface like the A16 directly into an ordinary computer Firewire port to use it as a stand-alone Firewire audio interface. However, the A16 does feature room for an optional expansion card that was originally intended to turn the A16 into a stand-alone USB 2 audio interface. When I asked Creamware about this, it seemed more likely that a Firewire interface would be released instead, enabling the A16 to be used as a Mac or Windows Firewire audio interface without an SFP card, much like the MOTU 896. We'll have to wait and see, though!

Main Studio Tools

The *Main Studio Tools Package* is supplied with all SCOPE systems and includes two mixers, a selection of DSP effects, and a collection of other handy tools — this package can be thought of as Creamware's basic Swiss Army Knife for the studio. The *STM1632* is the default mixer that you'll see when you first start working with the *SFP* software, featuring 16 channels that can be used independently as either mono or stereo for a total of 32 inputs, mixed to a stereo buss. Each channel can accommodate four aux sends and two insert effects (which you can select from pop-up menu, rather than having to re-patch anything), and the whole mixer can be remote-controlled and automated using MIDI controllers. The second mixer provided is the *STM16S*, which offers the same basic functionality as the *STM1632*, but works in 5.1 surround instead, providing a surround panner for each channel and a six-channel master buss.

The mixers included in the *Main Studio Tools Package* are pretty much bread-and-butter tools and work as you'd imagine — the interface is straightforward and the feature-set is ideal for mixing together, say, the outputs from ASIO, *Gigastudio* and a few instruments, before adding a few effects.

One of the biggest criticisms that is levelled at native-based production systems is the quality of the reverb, and while companies like Waves and TC Works have produced commendable products, there's no getting away from the fact that a good-quality reverb requires a fair amount of processing power. To overcome this problem, headlining the *Main Studio Tools* set of effects is *Masterverb*, a reverb that's definitely better than most native-based alternatives, and certainly comes close to the CPU-hungry high-end native alternatives. However *Masterverb* doesn't place any demands on your CPU and uses only around four percent of a 19-DSP system — and even when I was testing a basic Luna II-based SFP system prior to receiving the Power Pulsar, I could run several *Masterverbs*, which was absolutely ideal for using with *Gigastudio* and the Vienna Symphonic Library, for example. If you need the best reverb for your SCOPE system, Creamware also have *Masterverb Pro*, which can be purchased separately.

In addition to *Masterverb*, you also get *Masterverb Classic*, which uses only a single model for generating early reflections to save on DSP power. And other than reverb, the *Main Studio Tools Package* also includes 14 other effects: *Kompressor*, *Limitter*, *Gate*, *Expander*, *Parametric EQ*, *4-Pole Filter*, *High-Cut Filter*, *Low-Cut Filter*, *Chorus*, *Flanger*, *Phaser*, *Delay*, *Dual Delay*, and *Distortion*. As you might imagine, the EQ and filter effects are particularly good, and *Dual Delay* is great for creating tape-delay-style effects, especially for those Edge-like guitar parts and big synth sounds in general.

Rounding off the *Main Studio Tools Package* is a collection of MIDI and mixer tools. For MIDI, *Key Split* enables you to set a split point between a range of notes, so you can send the upper and lower ranges to different MIDI outputs. There's nothing to prevent you from using multiple *Key Split* devices in one Project if you want to set up more complicated performance Projects. There's also a selection of MIDI-merger devices enabling you to route two, four, eight or 16 inputs to one output, which is handy for feeding two or more MIDI inputs into one synth, for example. Rounding off the MIDI tools are the self-explanatory *MIDI Monitor* and *MIDI Filter*, *Sequencer Remote*, for remote controlling the transport of your sequencer via MIDI controllers, *MTCtoCLK*, which converts MIDI Time Code into the Clock format required for TripleDAT users, and, finally, *Notepad*, for making text-based notes within a Project.

The mixer tools provide a selection of modules to help with a variety of tasks, including making it easier to integrate outboard gear into the *SFP* environment, *Master Effect*, a master channel controller, *Aux Rack*, a single interface module for dealing with send effects, and *Control Room*, a utility for routing one of six inputs to one of six outputs, along with an impulse click and test-tone generators.

When TC introduced the Powercore and Universal Audio introduced the UAD1 DSP PCI cards, it became possible to use plug-ins that ran within a native environment but which had all their signal processing handled by an external card's onboard DSP power. Creamware responded by bringing out a similar product for Windows users called Pulsar XTC, which is basically a Pulsar II card without the audio or MIDI I/O (see the 'Meet The Family' box near the start of this article). Instead of running the normal SCOPE software front end like other SFP-compatible cards, Pulsar XTC introduced XTC mode where, with the bundled VST plug-in to direct any required processing to the Pulsar XTC card, a SCOPE effect or instrument device could run as a VST plug-in within a suitable host application.

XTC mode is now available on all Windows-based SCOPE systems (but not Mac ones), enabling you to use your SFP-compatible card's onboard MIDI I/O as normal, the audio I/O as on an ordinary ASIO soundcard, and the DSP power of the card to run the special XTC effects and instruments in your host application. Unfortunately, you have to close the ordinary SFP software, waving goodbye to all those lovely routing facilities, before you can use your SFP card in XTC mode. However, if you spend nearly all of your time working in *Cubase*, for example, XTC mode makes a great deal of sense, since the routing to and from *Cubase* and your SFP hardware is taken care of for you.

As mentioned in the box on latency earlier in this article, playing a SCOPE instrument so the output doesn't pass through an ASIO driver's buffers normally allows that instrument to be played virtually latency free. However, running a SCOPE instrument in XTC mode as a VST Instrument causes that instrument to be affected by the overall ASIO latency. Fortunately, Creamware have come up with a particularly neat way of overcoming this problem by implementing a feature called Direct Play (which, by the way, isn't related to Microsoft's DirectX technologies). What Direct Play enables you to do is route the output of all the SFP instruments (when they're used in XTC mode) directly to one of the hardware outputs on the card, enabling them to be played as if they were running as stand-alone instruments, rather than VST Instruments.

More Mixers & Effects

Included with every SFP system other than those based around the Luna II card is the *Mixer Package 1*, featuring the *STM2448* mixer. This is for those users who want to undertake the majority of their mixing work with the SFP software, or perhaps want to dedicate an SFP workstation as their digital mixer. The *STM2448* builds on the *STM1632* by offering 24 channel strips (for a maximum of 24 stereo channels), eight auxiliary groups, which could be used for send and return effects, and six dedicated mono sends and a stereo send with two inserts for the return channels. Each channel features its own independent EQ and a compressor with side-chain, along with four additional insert effects, while eight fader groups and mute groups can assist the mixing process.



Three of the synths from Creamware's *Synthesizer Packages*, from top to bottom: *Inferno*, *Blue Synth* and *Vectron Player*.

With this degree of routing flexibility, the *STM2448* is much more like having the functionality of a full hardware digital mixer in your computer, rather than the more common vanilla 'channels and master buss'-type software implementations. In addition to the *STM2448* mixer, *Mixer Package 1* also includes *Dynamic Mixer* and *Micromixer*, which Creamware recommend for submixing. However, if the *STM2448* still isn't enough, you can always add *Mixer Package 2*, which is bundled only with the high-end SCOPE/SP system, and this includes *STM48S*, a surround implementation of the *STM2448* with nine output busses for handling configurations up to 8.1. *Mixer Package 2* also includes *STM4896*, which offers the same features as the *STM2448* but with additional channels.

The mixer packages are complemented by the two effects packages, which are both supplied with all SFP systems other than those based around the Luna II card, although they can still be purchased separately. *Effects Package 1* focuses on delay-based effects, with some featuring a delay time of five seconds, along with other effects such as *Auto-Wah*, the great-sounding *Hexa Chorus*, *Early Reflector*, *Harmonic Flanger*, *Overdrive*, *Pitch Shifter*, *Resonator*, *Ring Modulator* and *Tremolo*.

Effects Package 2 includes three SSB (Single Side-Band) effects, *SSB Mod Delay*, *Modulator* and *Phaser* (SSB is a type of frequency-shifting modulation). *Effects Package 2* also features *Master Chorus* and *Master Flanger* (in the same vein as *Masterverb*), *De-esser*, and *Stereo Expander*, to name but a handful. The package rounds off with *Vocoder 3*, and Creamware also have an high-end model of this called *Vocadiser*, which is supplied with Luna II and SCOPE/SP systems, and is an optional extra for everybody else.

Manual Labour

Although a helpful installation manual is supplied with every SFP system, the manual for the software itself is supplied in PDF format only. While I would welcome a printed manual with open arms, even if it was just a 'getting started' guide, I have to concede that the electronic documentation is actually pretty good. It's well organised with hyperlinks and plenty of helpful tips, and the different documents are easily opened via a pop-up menu on the Live Bar. But I think the best aspect is that the PDF files have been properly designed for on-screen reading, which makes a pleasant change. Rather than simply design a manual as if it was going to be printed on A4-sized paper, for example, which nearly always results in scrolling or wasted screen space, Creamware have chosen the page size to conform with a typical aspect ratio so that each page fits neatly on the screen without scrolling.

Brilliant as all the routing, mixers and effects capabilities are, what I'm about to describe puts it all in the shade because, in my opinion, the real highlight of the SCOPE Fusion Platform is its synthesizers. The core synthesizers are split into two so-called *Synthesizer Packages*, much like the effects, and every SFP system except those based on the Luna II card includes these two packages as standard.

Synthesizer Package 1 comprises seven synths, which are a selection of recreated classics and some fairly standard synth fodder with a few twists. I think my own highlight in this package was the virtual analogue *Blue Synth*, and while the world isn't exactly short of subtractive synths, I really liked the character of this particular instrument — it seemed to make knocking out those clichéd trance sounds very easy, ably demonstrated by the collection of presets.

U Know 007 is unashamedly a Roland Juno, right down to the interface design. Again, the comprehensive selection of presets will give you plenty of ideas and starting points, not to mention classic Juno-esque sounds when you're not in the mood for programming. Staying with classic synths, *Synthesizer Package 1* also includes *Miniscope* and *Miniscope MkII*, Creamware's first attempts at recreating the Minimoog, recently perfected with *Minimax* (see the box on the final page of this article).

Taking its lead from the Sequential Prophet VS, *Vectron Player* is an instrument that utilises vector synthesis (ie. the ability to crossfade between several preset waveform sources with the aid of a X-Y controller) and, despite the fairly innocuous user interface, it sounds pretty amazing. The first synth package rounds off with *EZ Synth* (a fairly basic one-oscillator, one-filter, one-envelope instrument that didn't do much for me compared to the other offerings), and *EDS8i*, a drum synth that's capable of generating eight different types of analogue-style synth drums, including kicks, snares, and hats.

Test Spec

- Creamware Power Pulsar 15-DSP and Pulsar I four-DSP cards running SFP v3.1c software (also used; Creamware Luna II three-DSP card).
- 1.53GHz Athlon XP1800 processor-based PC with 1GB of DDR (PC2100) memory and an ATI Radeon 7500 64MB dual-head graphics card, running Windows XP Professional.

Synthesizer Package 2 features three additional synths and an arpeggiator. *Lightwave* is a wavetable synth (with 128 wavetables) very much in the tradition of synths like the PPG Wave, and *Prisma* is another subtractive synth, but one that's made extremely versatile by its inclusion of a substantial modulation matrix. Finally, there's *Inferno*, which produces some very William Orbit-like bass and lead tones thanks to its unbelievably resonant filter. It's great at creating sounds for arpeggiated patterns, too, which brings me neatly to *Arpeg 01*, a MIDI arpeggiator that can be placed between the path of your MIDI input and synthesizer.

But if the two synth packages aren't enough for you, SCOPE/SP users get an additional five instruments and another arpeggiator, which can all be purchased separately by users of other SCOPE systems. If you liked *Vectron Player*, you'll love *Vectron*, which allows you to use new waveforms and even draw your own with a mouse — great fun! *SB404* is another modelled analogue synth, but this one features a built-in step-sequencer for creating more movement in your sounds, while *Poison* combines both subtractive and FM synthesis in one instrument. *EDS16i* is the big brother of the *EDS8i* drum synth and, as the name suggests, provides 16 drum sounds with individual outputs, but with more synthesis parameters for control over the individual sounds than its cut-down sibling. Similarly, *Arpeg 02* is the next step from *Arpeg 01*, and adds powerful MIDI-controllable features aimed at live use. Finally, if you're looking for guitar sounds, Creamware also have *Six String*, an optional physically modelled plucked-string instrument that will be bundled with the forthcoming Noah.

However, for many synth addicts, the modular synth included with Pulsar II, Power Pulsar and SCOPE/SP cards (shown above) will be a notable highlight. *Modular*, as it's known (Lady Inspiration was obviously not visiting Sieburg on that particular day), is an incredibly powerful and versatile modular synth, and many example instruments are included to demonstrate what's possible, including one particularly amusing example that plays the *Knight Rider* theme using an onboard step sequencer, and provides a ready-made synth to play the lead line. Clearly, the Creamware team have way too much time on their hands...

The version included in the systems mentioned is actually the second version of *Modular*, and a newer v3 release is available as an upgrade from Creamware's on-line store, featuring more modules, many of them designed by Hans Zimmer, and the ability to design your own graphical front panels.

Third-Party Support

In addition to Creamware, there are many third-party developers producing software for the SFP. One of the most notable is Zarg Music (<http://www.zargmusic.com/>), run by John Bowen, one of most experienced synth designers in the world, who's previously worked at Sequential Circuits, Korg and Creamware. In addition to producing a range of original synths, culminating in the new *Solaris* (look out for a review in next month's SOS), Zarg have also been involved in recreating classic synths for the SCOPE Fusion Platform, including the *Prophet Plus* (reviewed in this month's Plug-in Folder), and *Pro One*. Other third-party SCOPE developers include Fxpansion (<http://www.fxpansion.com/>), Sonic Timeworks, Waldorf and SPL. More information, along with demo versions, is available from Creamware's web site.

Send In The Samplers

I have to confess that the samplers were the area of the *SFP* software that interested me the least. This is no reflection on their quality, because they are really good, but more the fact that host-based samplers like *Gigastudio*, *Halion* and *Kontakt* are just streets ahead these days with their ability to stream samples directly from disk.

The STS2000P is a simple Akai S1000/3000 sample player, while the STS3000 provides an audio input for recording your samples, in addition to three filter types for shaping the sound — admittedly, these filters do sound better than many of the native-based offerings. STS2000P and STS3000 are both included with Power Sampler, Pulsar, Power Pulsar and SCOPE/SP systems, while *Volkszämpler*, a native Windows-only version of STS3000, is included as a VST plug-in with all SFP systems, including Luna II-based ones.



"One

Modular can make a difference, Michael..." Creamware's *Modular 2* is a powerful modular that takes full advantage of the SCOPE Fusion Platform. Here, it can be seen put to use in creating a convincing rendition of the *Knight Rider* theme tune...

STS4000 builds on *STS3000* by offering 11 additional filter types and more outputs, but the flagship *STS5000* is where Creamware really offer something special. Although it's based on the same simple interface as the other samplers, *STS5000* veers a little into Roland's Variphrase territory by offering features such as advanced formant handling, which enables you to play a single sample as if it was a multisample, correct vocal pitch, and stretch pitch and time in real time.

Overall, if you want a computer-based sampler to play back your Akai CD-ROMs, Creamware's samplers are more than adequate and you might want to consider the Power Sampler bundle in this situation (see the 'Meet The Family' box). But personally, aside from the *STS5000*, which could come in handy for remixes, I just can't live without my host-based samplers. However, the flipside of this situation is that Creamware's SFP is perhaps the ideal companion for *Gigastudio*; combining the fairly vanilla playback abilities of

Gigastudio with the sound-mangling potential of Creamware's effects creates a very powerful sampling system.

As a footnote, when it comes to using the effects and instruments, there's a consistent interface used for all these modules, offering familiar features such as bypass, access to presets, and so on. While the samplers are 16-part multitimbral, the synths are all one-part instruments, which is fairly logical, and you can assign however many voices you want to allocate an instrument via the Live Bar or the instrument's interface — although more voices require more DSP, because they're guaranteed voices. Similarly, you can assign which MIDI channel synths respond to when you connect them to the MIDI output from your sequencer, or simply leave them in omni mode; and if you need more than 16 synths in your Project (a distinct possibility if you have a 45-DSP SCOPE system), you can add another virtual MIDI port in the *SFP* software for communications from your sequencer.

I Shall Call It — *Minimax*

While *Synthesizer Package 1* includes the Minimoog-like *Miniscope* and *Miniscope MkII*, one of the optional synths from Creamware you'll just *have* to buy is *Minimax*, a modelled emulation of the Minimoog. Hans Zimmer summed it up perfectly when he told us "you know, everybody's done models of Minimoogs, but this one — I put it up against my real, slightly ailing Minimoog and it's absolutely identical." It's impossible to argue — the response you'll get from playing from the very first note, and every one subsequently, will be one of inspirational amazement, because not only does it sound exactly like the real thing, its depth (I refuse to use the word 'fat') will make you realise just how bad some virtual synths really are.

When you take a look at the DSP load, though, you'll soon realise why *Minimax* sounds so good — it's greedier than Homer Simpson in a doughnut factory. Although a one-voice instance of *Minimax* took a fairly reasonable 12 percent of the available resources, it's important to bear in mind that this was running on a top-of-the-range 15-DSP chip system! On a six-chip Pulsar system, a one-voice *Minimax* would probably need over 25 percent of the resources, and with a three-chip Luna system it would probably use well over half. Getting back to the 15-chip board, two voices needed 16 percent, three 20 percent, four 24 percent, and eight voices used 44 percent of the available resources.

However, these figures are meant more as an observation than a criticism, because DSP models that sound as good as *Minimax* are always going to require a great deal of processing resources. While few would turn down a Minimoog Voyager, it really could be thought of as a monophonic luxury in many ways, compared to the fact a 15-DSP SCOPE system can run two six-voice or seven monophonic instances of *Minimax* without sweating. Admittedly, though, I'm comparing different products for different markets here.

Minimax is one of the instruments included in Creamware's upcoming Noah, and I think it's safe to say there'll be many people who wouldn't buy a computer to run the SCOPE Fusion Platform, but will buy a Noah just to get their hands on *Minimax* — it's that good.



Full-Fat Or Semi-Skimmed?

When I came to write the pros and cons section of this review, for perhaps the first time ever, I couldn't think of any immediately obvious reasons why someone *shouldn't* buy one of the products in the SFP family. Not only did I experience flawless operation during the course of the review, as I have done with my original

Pulsar I card previously, but the sound of the synths and the whole system generally is tremendous, and the flexibility of the routing, especially if you want to use *Gigastudio* on the same computer as your sequencer, is unparalleled. In the end, I could only come up with a couple of reasons: Firstly, some of the effects provided with either the TC Powercore or Universal UAD1 might be preferable in certain situations if you're only in the market for one DSP card — although you could of course use both of these *with* Creamware cards in the same computer! Secondly, the samplers (with the exception of *STS5000*) could fairly be described as a little behind their native competition. Lastly, the high-end SFP cards aren't going to be within everyone's budgets. If you're thinking these criticisms sound a little lukewarm, you'd be right — they are. I can't think of one really good reason why someone who wants to add a DSP environment to their existing native-based system with great-sounding synths shouldn't consider the SFP.

It perhaps goes without saying that it's going to take anyone a little time to get their head around the SFP, although I think it's one of those systems where you can learn as much as you want or need to at any one time. For example, when you first install an SFP card, it defaults to work as any other soundcard you might install — it's only when you want to start adding additional effects, instruments or mixers that you need to start worrying about other areas of the system. On the other hand, you could just use your SFP card in XTC mode all the time and not worry about the hidden complexity, although Creamware have made the SFP much easier to use since adding features like the Live Bar.

Writing an eight-page review of Creamware's SCOPE Fusion Platform is a bit like having a fortnight to take a tour the world — there's just so much to delve into, and the scope of the system is simply vast (if you'll excuse the pun). If you're in the market for a new soundcard, Creamware's range definitely deserves consideration. The Luna is the ideal soundcard for anyone on a budget, or someone who does most of their work inside the computer and doesn't require extensive I/O, while the Pulsar is probably the best choice for a musician looking to run a number of the high-quality synths in their system. If you've got the budget, and if you've ever felt restricted by the confines of a native-based system, the Power Pulsar or the SCOPE/SP systems are unlikely to disappoint, because they offer unbelievable power.

But at the end of the day, given the sometimes overwhelming expansion options and the backwards compatibility, you can be sure that whichever SFP card you choose, you're not going to outgrow it any time soon — you will, however, simply desire more of the same. As for me... I'm writing a letter. "Dear Creamware, I'm stealing the Power Pulsar. Love, Mark". ☺

Pricing

Luna II card	£399
Luna II EX card	£499
Pulsar II card	£849
Power Pulsar card	£1699
SCOPE/SP card	£2599
SCOPE SRB card	£1499
Sync Plate	£189
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