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Crystalaid Manufacture (CRM) was incorporated in 1975, as a division of Crystalaid, established in 1952, to dispense professional audiometric technology using selective sound frequency amplification. The use of subminiature components enabled CRM to manufacture hearing instruments and this know-how was used to build better electronic devices. CRM eventually re-established itself as a subcontract electronics assembler aiming for high reliability and a broader market.

Leveraging on more than 50 years' collective industry experience, CRM has embarked on a major expansion drive. CRM appointed Mark Walker as a General Manager in February, and Greg Hellams as a Sales Manager in March.

CRM has invested over \$2 million in new equipment and software this year. This includes installation of the Juki FX3 Pick & Place machine with a line placement rate of 100,000 components an hour and a full server upgrade to provide superior data security, and includes full integration of IS Juki database software and Mentor Graphics' MSS Cradle-to-Grave MRP software.

The installation and the upgrade enabled CRM to become highly competitive for providing a variety of services, from prototype through to low-, medium- and high-volume assemblies. CRM has AS9100 Rev C accreditation and offers 3D X-ray, wire- and die-bonding services in a Class 7 cleanroom.

Crystalaid Manufacture
www.crystalaidmanufacture.com.au

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THE PRESENT AND FUTURE OF WEARABLE TECHNOLOGY

Christian DeFeo, element14*

Trying to weave technology into our everyday lives is something that has been happening for hundreds of years, with the 16th century abacus ring often touted as the first 'wearable computer'. Now, wearable technology is changing and becoming more mainstream. This article examines opportunities and challenges presented by wearable technology.



The big technology giants are all getting in on the action, developing products and snapping up niche companies to help cash in on this growing market, which is expected to be worth \$30-50 billion in the next two to three years, according to a recent Credit Suisse report.

WIMM labs, the maker of the lauded WIMM One smartwatch, was recently snapped up by Google. This followed months of speculation after WIMM labs ceased operations last summer, leaving only one clue to the possible reason ... a short message on its website. "During the summer of 2012, WIMM Labs entered into an exclusive, confidential relationship for our technology and ceased sales of the Developer Preview Kit ... We'd like to thank all of our developers for their interest and willingness to experiment with our platform and look forward to exciting advances in the wearable market."

Google isn't the only big player seeing the potential in wearable tech and snapping up specialist companies that can help them meet the growing trend. Samsung, Microsoft, Apple and LG are just some of the names that continue to drive speculation with rumoured acquisitions and developments.

Wearable technology is no longer limited to high-end smartphone derivatives, but offers the potential for numerous technical innovations.

It's tough to escape the internet and the next logical step draws technology even closer, integrating it into our clothing and into every aspect of our lives. Future generations will wonder, for example, why we bothered with keys and laugh at our tales of losing them, when all they need to do is tap their NFC Ring against a panel on the door.

Making wearable technology a reality

As well as jewellery that opens doors, wearable technology will open numerous opportunities that can have an impact on every area of our lives. There are already a host of specialised wearable technology applications doing different jobs, including GPS sensors that tell a partially sighted person when they're near home, sensors that are embedded into the robes of vulnerable people living by themselves that can detect a fall and alert carers, as well as technologies which we've all become accustomed to such as heart rate monitors and in-shoe

running sensors. In the future, gadgets and electronics will integrate more closely with people, going beyond traditional tracking and using the data in a host of clever ways.

One of the newest emerging wearable technology areas can be found in intelligent transport systems (ITS), an area of technology that includes telematics and all types of communications in vehicles, between vehicles (eg, car-to-car), and between vehicles and fixed locations. How wearable technology will impact on this area may not be immediately clear but intelligent transport systems are not restricted to communications between vehicles. In the future pedestrians and cyclists could benefit by wearing sensors that monitor traffic and communicate with cars, forcing them to slow down or brake if a pedestrian gets too close. Consider a world where crossing the road no longer has the potential to kill.

With the scope of new solutions growing the impact for engineers and the designing community is huge. After all, designers will be responsible for making this future a reality. Products like the Adafruit Flora are also helping to democratise wearable technology. The Flora is a wearable electronics platform designed for makers, hackers, crafters, artists, designers and engineers. It's built around the Atmega32u4 chip which has built-in USB support, meaning you don't need any specialist cables or extra parts to get started with programming, making it easy for beginners to bring their wearable projects to life.

The Flora has seen wearable technology being taken up by the maker movement, creating a bridge between electronics and crafts, this new accessibility will see an explosion in the creation of wearable technology, some useful, some amusing and some just bizarre but many with the potential to become as pervasive as mobile phones are today.

Fearing change

We're at the very early stages of comprehending what wearable technology will mean for us. Consumers are thrilled and possibly scared about the implications, especially regarding recent revelations about data collection by governments. Security will always be something to consider. As we become more connected, devices will become smarter and collect more information. It's only wise to understand how this data will be managed and where it will be stored.



There has also been some criticism about the market being torn between the companies that are desperate to innovate and consumers who are asking, do we really need this? For anyone wondering if companies are trying to force the trend, the early days of internet adoption provides a useful analogy.

When the internet first showed up in people's homes circa 1995, many people thought that it was all hype and no substance. It required flaky modems and users experienced terrible download speeds. However this didn't make the internet any less significant. It's important to remember that technology can often get ahead of itself, being available before it is fully practical or usable.

Eventually broadband and 3G came along and we forget that there used to be a time when you'd get cut off if someone else in the house picked up the phone. Companies are trying to muscle into wearable technology because they know it will be fully practical one day soon, and they're still adhering to the dotcom bubble era idea of 'first mover first' - the perception that if you don't get there ahead of your competitor, they will carve out a lead you can't overcome. While this psychology remains there will be a number of products which make little sense as a result. However, this should be considered as a natural part of the creation and adoption process. Eventually these early teething problems will be ironed out and wearables will become as ubiquitous as the internet is today.

Getting closer

element14 wanted to tap into its extensive community of developers to find out what the future really holds when designers are given a chance to bring their innovative ideas to life. The company joined forces with Adafruit and started the 'Get Closer' challenge. Using all the contents from the

Adafruit FLORA Kit, which includes a GPS sensor, a colour detector, an accelerometer and several LEDs that can be sewed into fabrics, competitors were asked to submit their concepts of wearable technology.

Over 100 concepts were submitted including:

The GPS-hat

Walking in the wrong direction and getting lost is almost impossible nowadays thanks to GPS-enabled smart devices. In most cases however this requires you to hold a device at all times. One concept wants to solve this dilemma: by equipping a baseball cap with LEDs that show you the right way. The cap can be set to a line of locations, which you want to visit one after another. Once you reach a target the hat changes directions to the location next in line. And even better - the more locations you reach, the more colourful the LEDs get.

The GPS- glove

For people who don't want to wear a hat another solution might be gloves. Another concept describes a LED-equipped glove, which shows a compass needle that points you to your location. Thanks to the built-in accelerometer, the glove only shows directions when the wearer shakes his or her hand. During normal movements the LEDs go into stand-by to save energy.

Out of the hundreds of entries submitted two winners were chosen:

The Flora ColourCam

Wearables are not only for grown-ups. One of the winning concepts was for a toy. The camera-like device has two white LEDs and a colour detector on the front and three LEDs that can glow in different colours on the back. Children can point the front at an object, for example a green apple, and the colour detector registers the green colour with the help of the white LEDs. The information is then sent to the LEDs on the back of the device where the LEDs change colour accordingly, with one LED taking on

the same colour as the object. Beneath every LED there is a pressure-sensitive sensor. If the child presses the correct LED an affirmative tone is played.

The FLORAbrella

No one likes rainy days - the FLORAbrella is designed to brighten up your day with a simulated rain shower light pattern that converts to a rainbow-inspired light show. The clear-domed umbrella shows off the neopixels and colour sensors. The GPS means the umbrella can display its rainbow light show when the user is near home while the colour sensor allows you to coordinate your outfits accordingly.

What the future holds

Wearable technology is still in its early stages but we've already come a long way since the calculator watch of the 1980s. In the not-too-distant future wearable technology will become an all-encompassing part of us. Thirty years ago the idea of a phone without a cable was only imaginable in the realms of science fiction but children born in the next 50 years will hear us talking about plugging things into the wall and wonder what on earth we're talking about. With energy harvesting, the narrative was similar: children in the future will read about how much waste we created by using batteries and shaking their heads in disbelief in much the same way as we now look at people in the 19th century who used to just burn coal without any concern for the environment. The same is true with wearable technology. We're at the forefront of a technological revolution, which will eventually become the norm, now is the time to make sure we harness the innovation and equip our engineering industry with the know-how and tools to make it a reality.

**Dr Christian DeFeo began his career in information technology at the age of nine, when he received his first personal computer. After graduating from university, he was recruited by International Computers Limited and since then has worked for prestigious firms such as ebookers.com, the Trader Media Group and, most recently, element14, where he presently works as an eSupplier Manager. Among his responsibilities, he works with manufacturers to identify new technologies (including wearables) and develops content marketing and education programs to spread the word. He currently resides in Bradford, West Yorkshire.*

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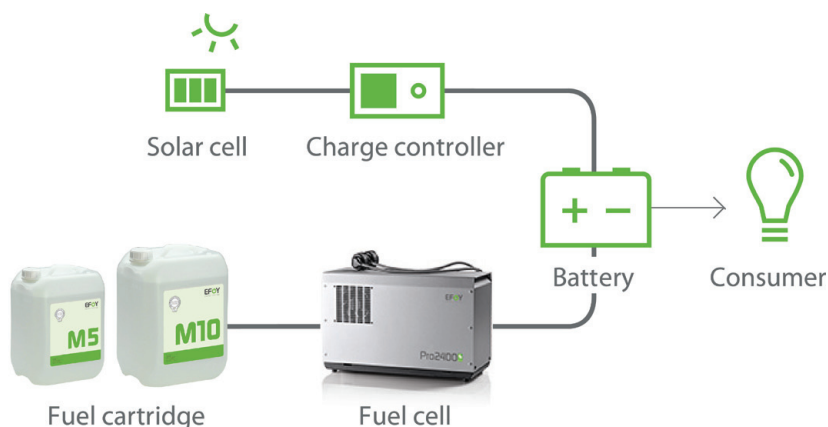
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RECOM Asia Pte Ltd

For more info on this product wf.net.au/U696



MICROCONTROLLER DEVELOPMENT KIT

ARM's version 5 of the Keil MDK-ARM microcontroller development kit is a comprehensive software development system for ARM processor-based microcontroller applications. The MDK-ARM version introduces software packs, CMSIS-RTOS based middleware, ETB and MTB trace, CMSIS-DAP debug support and code completion with dynamic syntax checker in the source code editor.

Embedded Logic Solutions Pty Ltd

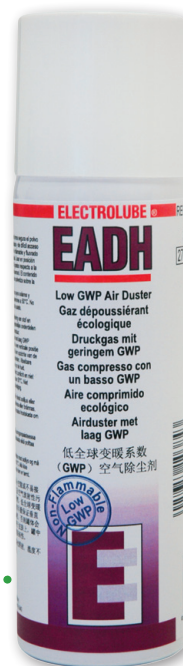
For more info on this product wf.net.au/V352

AIR DUSTER

The EADH 'green' air duster is a non-flammable duster that helps to remove all dust and airborne contamination from inaccessible areas on electrical and electronic equipment to maintain parts efficiently and quickly.

HK Wentworth Pty Limited

For more info on this product wf.net.au/U820



IGBT MODULES

The IGBT module SKiiPX is designed for extreme climatic conditions and allows condensation during operation. It meets the requirements specifically for wind turbines in a power range of 1-6 MW in a claimed outstanding way.

Under harsh climatic conditions, secondary damages caused by moisture rank among the most common causes of failure of power electronics modules. Therefore, a classification of a module for a higher pollution degree implies a significant increase in the lifetime of that module.

Semikron Pty Ltd

For more info on this product wf.net.au/V368

MONITORING AND TROUBLESHOOTING SOLUTION

Fluke's Visual TruView appliance is a unified, single-box network and application performance monitoring and troubleshooting solution. To speed problem resolution, the device integrates the separate disciplines of network and application performance monitoring, element managers and stream to disc (S2D) with up to 10G performance, so engineers never have to waste time performing 'swivel-chair correlations' across multiple tool sets.

To ensure these integrated functions operate without degrading performance, the appliance claims to have 2.5 times more analytical processing power than any competing solution.

Fluke Australia Pty Ltd

For more info on this product wf.net.au/U579

PANEL PC

The DC13 panel PC is suitable for demanding HMI applications in the railway sector; for example, for monitoring and displaying train functions, for speed optimisation or for fleet management.

Mikro Elektronik

<http://www.men.de>



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The fit-PC3 range of miniature fanless PCs is designed around the AMD-embedded G-Series Fusion APU providing dual-core 64 bit x86 CPU @ 1.0-1.65 GHz with the AMD Radeon HD 6xxx GPU and supplemented by up to 8 GB DDR3 RAM.

Allied Data Systems Pty Ltd

For more info on this product wf.net.au/U568

INDUCTIVE ENCODER

The Zettlex IncOders non-contact, absolute angle measuring devices range uses an inductive technique and may be considered as inductive encoders. The range has been expanded and covers 30,000 different product variants.

The range includes high- and low-resolution versions (14- to 21-bit options) IP67 integral cable, servo clamp format with plain rotor, -55°C operating temperature option, mix and match rotor and stator mechanical formats.

Motion Technologies Pty Ltd

For more info on this product wf.net.au/V103



MULTI-GNSS PLATFORM

The u-blox M8 multi-GNSS chips form the basis of u-blox's upcoming line of positioning modules that are able to acquire and track different satellite systems concurrently to achieve higher accuracy and reliability.

Supporting all deployed as well as upcoming global navigation satellite systems (GNSS), the platform is based on the UBX-M8030 concurrent multi-GNSS receiver IC which is able to track American GPS, European Galileo, Japanese QZSS, Russian GLONASS and Chinese BeiDou satellites.

u-blox Singapore Pte Ltd

For more info on this product wf.net.au/V351

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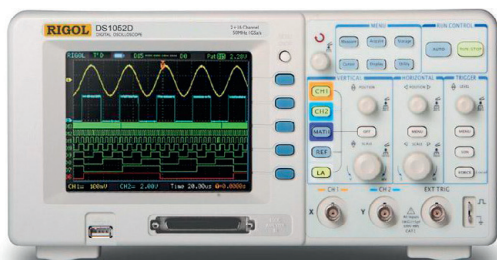


MIXED SIGNAL OSCILLOSCOPES

The MSO4000 series mixed signal oscilloscopes represent the latest innovation in Rigol's range of oscilloscopes that extend from 50 MHz 1 GS/s models all the way up to 1 GHz bandwidth models with 5 GS/s sampling rates. The series includes 100, 200, 350, 500 MHz bandwidth models with 4 GSa/s sample rate in analog channels and 1 GS/s sample rate in digital channels (MSO).

Emona Instruments Pty Ltd

For more info on this product wf.net.au/U605



new
PRODUCTS

200 MHZ HANDHELD OSCILLOSCOPE

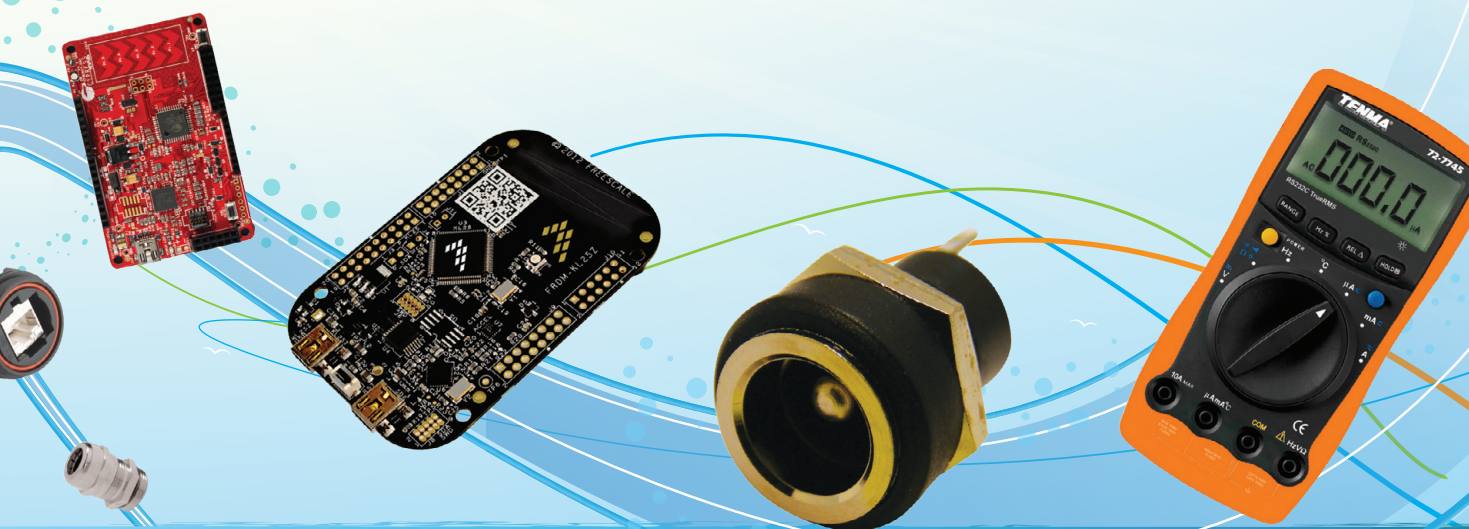
The Fluke 199 200 MHz ScopeMeter, available to rent, is a battery-powered oscilloscope with up to 200 MHz bandwidth, a memory of 27,500 points per input and 2.5 GSa/s real-time sampling. The instrument is 1000 V CAT II and 600 V CAT III safety certified.

TechRentals

For more info on this product wf.net.au/V332

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BRIGHT FUTURE FOR OLEDs

Mike Smyth, specialist technical writer



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OLEDs have become the device of the moment with the recent announcement and launch by Samsung of its huge 55" curved television receiver, designed to wow the viewer with its incredible sharpness, colour range and contrast. While nobody seems to have questioned quite why we need a curved television, the technology behind it is taking us one further step towards equipment that is low in power demand and producing a realism that is breathtaking. In addition, OLEDs work without a backlight allowing them to show very deep blacks. A further bonus is that they are lighter and thinner than LED displays.

OLEDs, or organic light emitting diodes, are complex devices that therefore mean they are expensive to make and the present manufacturing failure rate can be as high as 70%. In addition, there is a question mark hanging over their longevity, especially in such equipment as domestic televisions.

Despite these limitations, OLEDs are in the commercial arena through mobile phones and tablets and especially televisions. In fact, one of the major outlets for these devices is seen as television receivers where sharpness, a huge contrast range, low power consumption and a wider viewing angle are attractions that are expected to take the viewer into a whole new dimension.

Although LEDs have been with us for some years, the addition of an organic element has opened up a whole new range of displays that are expected to eventually replace plasma, LCD and LED/LCD.

The fundamental difference between LEDs and OLEDs is that OLEDs emit light when a current is passed through them whereas LEDs need a backlight to make their colours visible. The newer devices also change colour very quickly, up to 1000 times faster than an LED backlit device, which is one of their attractions for televisions as they can offer a blur-free picture which retains its sharpness through all the action.

The organic components are placed between the conductors of the LED and because it does not need a backlight, it is more energy efficient. OLEDs are further departmentalised into AMOLED (active matrix) and PMOLED (passive matrix).

The active matrix type generates light under electrical stimulation. The matrix is integrated into thin film transistors that operate as a series of switches controlling the current flowing to each individual pixel. Usually two TFTs are used in a typical device - one to set off the luminescence and to start and stop the charging of a storage capacitor while the other TFT generates a voltage to maintain a constant current. This eliminates the necessity for high currents needed in the passive matrix devices.

AMOLEDs have high refresh rates and consume low power, making them ideal for devices where battery life is critical. The downside is that the organic material can degenerate over a relatively short time leading to colour shift.

The name of the passive matrix LEDs relates to the way in which the display is driven, a system in which each row in the display is controlled sequentially. There is no capacitor and the pixels in each line are off for most of the time. However, to make them brighter, more voltage is required. Although they are devices that are easy and cheap to make, the higher voltage needed gives them a shorter life and their physical size is restricted, making impossible their use in large displays.

OLEDs can come in various forms depending on how the light is made visible. Emissions can be either top or bottom of the device. In a bottom arrangement, light passes through the transparent lower

electrode and substrate of which the device was manufactured. Top emission is where the light passes through a cover that is put on after the device is made. This version is more likely to be used with active matrix LEDs as it can more easily be integrated into a non-transparent transistor backplane.

Transparent OLEDs (TOLEDs) emit light from both sides, which greatly improves contrast making them suitable for use in head-up displays and smart windows. Stacked OLEDs put the red, green and blue subpixels on top of one another giving greater colour depth and reducing the pixel gap. Other arrangements have the RGB and RGBW pixels mapped next to each other, but this is likely to give lower resolution.

An inverted OLED has a bottom cathode that can be connected to the drain of an N-channel TFT. This configuration, using amorphous silicon, can be used to make AMOLEDs.

Transfer printing has the potential to make possible the efficient assembly of large numbers of parallel OLEDs and AMOLEDs. Standard metal deposition, photolithography and etching are used to create alignment marks on glass.

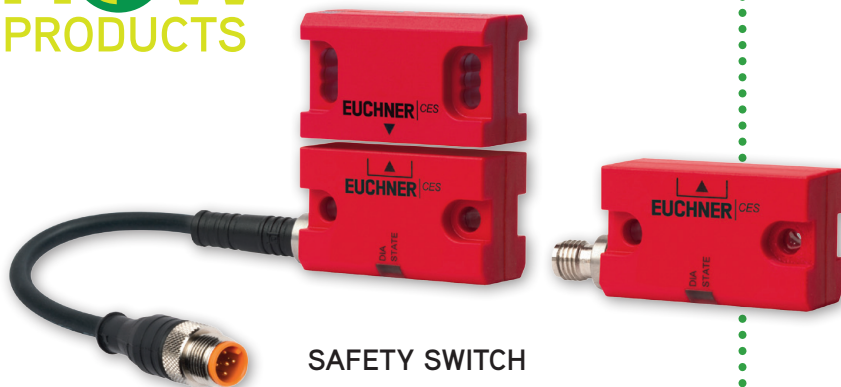
Adhesive polymer layers are applied and ICs are transfer printed onto the adhesive surface before baking to cure the layers. A photosensitive polymer layer is applied, which reintroduces a flat surface. Etching and photolithography remove polymer layers to reveal the conductive pads of the ICs. An anode is then added to the backplane, which then forms the bottom electrode. Finally, OLED layers are applied to the anode layer before the device is covered with a conductive metal electrode layer.

Still in its infancy, transfer printing can work substrates up to 500 by 400 mm, but this size must be expanded if it is to be adopted as a process for creating large OLED/AMOLED displays. While OLEDs can be printed on to any substrate using an inkjet printer or screen printing, the substrate itself costs more than the TFT LCD substrate.

The ability to make flexible panels opens up the possibility of their incorporation into clothing and fabrics but, as mentioned, longevity and efficiency of the devices are still under question, especially that of the blue OLED, while improved sealing will be necessary for the flexible displays to prevent water damage.

Mobile phones, car radios, tablets and digital cameras are all users of OLEDs where the high light output makes reading in daylight relatively comfortable. And because these devices are normally used intermittently, the issue of longevity is much reduced. Now more attention is being switched to providing OLED area lighting and although progress is being made, there is still some way to go before OLEDs replace traditional lamps although OLED desk lamps are available.

Some exciting developments could be in the wings as this technology matures so the future for these solid-state devices indeed looks bright.



SAFETY SWITCH

The CES-C04 safety switch from Euchner consists of two components: a read head with integrated evaluation electronics and an actuator. The design of the safety switch permits use on doors hinged on the left and right.

Treotham Automation Pty Ltd

For more info on this product wf.net.au/V300

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VRUs are used to reduce voltage to lighting systems, reducing the amount of electrical energy delivered to a lamp once the lighting is turned on. Some reduce the voltage after allowing the lamps to be activated at the nominal voltage.

Comtest Laboratories Pty Ltd

For more info on this product wf.net.au/T878



LED PANEL INDICATOR

The Marl 655 Series 8.5 mm mounting, professional LED panel indicator features a hexagonal bezel and a self-lubricating PTFE 'top hat' style panel seal to aid with mounting. The panel indicator features a high-intensity green LED element.

Internal circuitry is designed for operation at 20 mA. Termination is achieved by 150 mm colour-coded flying leads, which are in accordance with Def Stan 61/12 part 18 chemical and flame retardant.

Aerospace & Defence Products

For more info on this product wf.net.au/U861

INDUSTRIAL UNMANAGED SWITCHES

The MOXA EDS-210A series 10-port industrial unmanaged switches deliver gigabit speed and multiple fibre connections for small-scale and widely distributed edge applications, such as factory floor automation and IP surveillance uplinks for ITS networking.

MOXA Inc

For more info on this product wf.net.au/V364



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Advantech Australia Pty Ltd

For more info on this product wf.net.au/U688

SECURITY SOLUTION

IndustrialProtect, from BAE Systems Detica, is a military-grade solution to protect nations' industrial control systems.

The solution is designed to protect the industrial control systems of organisations such as power plants, oil refineries or automated manufacturing plants from cyberattacks, allowing them to both modernise their legacy systems as well as improve their security.

BAE Systems

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Comms Connect – formerly RadioComms Connect – returns to Melbourne's MCEC this November to deliver vital information to the mission and business-critical communications communities – the users, the dealers and industry.

Highlights



Hannu Aronsson — Chair TCCA Apps working group, CTO Portalify

Data and apps on narrowband radio networks: get more out of your network



Simon Lardner — Director, Challenge Networks & Telecommunications Consultant

Independent LTE networks for major resources projects



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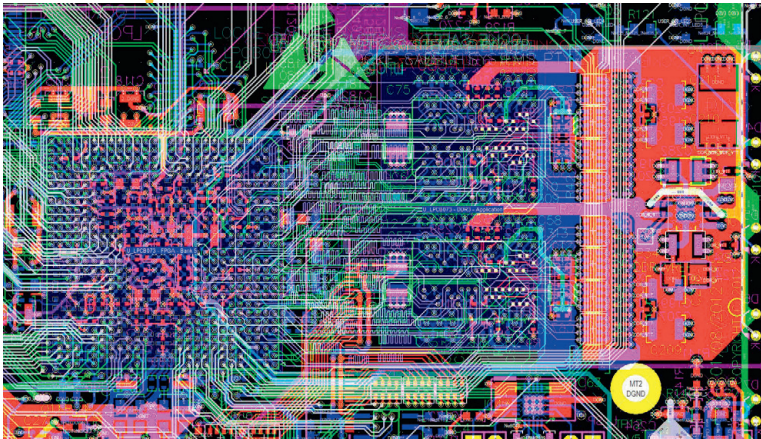
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PCB design for construction safety equipment

Australian technology design company Lockie Safety Systems usually designs PCB layouts in-house but when the company started a new project that required radically different architecture, it decided to engage external experts.

Lockie Innovations was developing a new product on a tight deadline. The Lockie group of companies designs and manufactures functionally safe technology for a broad range of equipment including telehandlers, excavators and boom lifts. The challenge was to design the new PCB to fit within existing



mechanical restraints of the former product. With additional features like a large FPGA, quad video interface and dual multi GB DDR 3 memories which run at 667 MHz, it was going to be an ambitious and involved design.

Lockie Safety Systems was referred to Australian-owned PCB design company Fine-Mark Design by its PCB supplier. Following Fine-Mark Design's thorough assessment of the job, Lockie's management was confident that the project was in good hands.

Fine-Mark Design reviewed the schematic and provided Lockie a comprehensive

analysis of the work required to meet design objectives. Fine-Mark's attention to detail and track record with innovative PCB designs ensured success of the project for the client.

"Our new product contained our normal safety systems, along with a quad video interface, the largest FPGA available, dual multi Gb DDR3 memories and a host of other devices. As we could not expand the size of our product we had to choose a PCB technology node that could not only support the high speed requirements, but also the thermal and mechanical constraints," said Lachlan Grogan, CEO and product architect, Lockie Safety Systems.

Fine-Mark Design worked closely with Lockie to ensure that the PCB would fit within the existing mechanical architecture and the result was a layout with a 12-layer stack, double-sided high-density loading and high-speed digital requirements.

"Our PCB worked first spin, the memory interfaces (which were most complex and challenging) worked without fault and our entire project came together. In this instance it was far more economically beneficial to get Fine-Mark to layout the PCB, rather than going down the traditional route of doing the job in-house," Grogan adds.

Fine-Mark Design assessed the job at the beginning of June and the final design was ready for manufacture by early August.

"The Lockie project was an ambitious high-speed digital design project. Even though the time frame was tight we needed to research and investigate high-speed requirements before embarking on the design. The results speak for themselves as the PCB worked first spin enabling the client to go straight into production avoiding multiple prototypes which saved a great deal of time and expense," says Chris Krulic, technical manager, Fine Mark Design. Krulic is a PCB design expert with over 25 years' experience.

Fine-Mark Design has worked on diverse jobs across a range of sectors and is currently focused on becoming the 'go to' development partner for innovative product developers who need an expert PCB design service for their projects.

Fine-Mark Design

Contact info and more items like this at wf.net.au/V362



WIRELESS PUSH BUTTON

The Banner Engineering Sure-Cross wireless Q45 push button with confirmation light permits operators to send a digital signal with the push of a button and receive confirmation the signal has been received.

Micromax Pty Ltd

For more info on this product wf.net.au/V356

SURFACE MOUNT ASSEMBLY SOLUTION

The Quadra surface mount assembly solution from TWS Automation is suitable for low-volume, high-mix SMT assembly.

Features include: 3500 cph in real production (max over 4500 cph); high-resolution, full-colour camera; high-speed brushless motors; flexible, standard SMDs, metal domes, LEDs, through-hole LEDs; automatic feeder Z setting; up to 120 x 8 mm tape feeders; compact footprint; 0201 metric capability; Linux OS for dependability.

Hawker Richardson

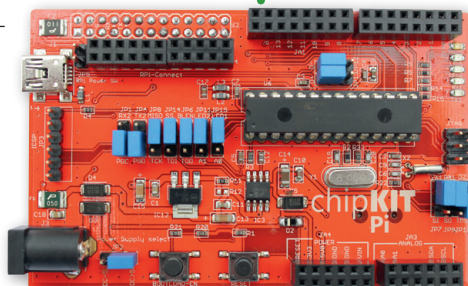
For more info on this product wf.net.au/U606

EXPANSION BOARD

element14, partnering with Microchip Technology, a provider of microcontroller, mixed-signal, analog and Flash-IP solutions, has launched its Arduino compatible chipKIT Pi Expansion Board in collaboration with element14 and volunteers from the chipKIT and Arduino communities.

element14

For more info on this product wf.net.au/V179



new
PRODUCTS

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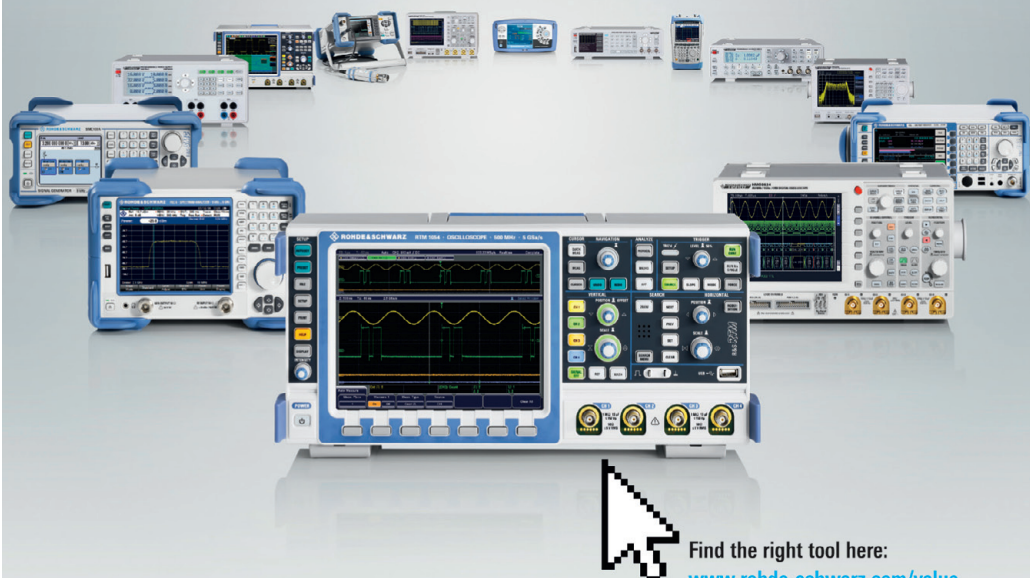
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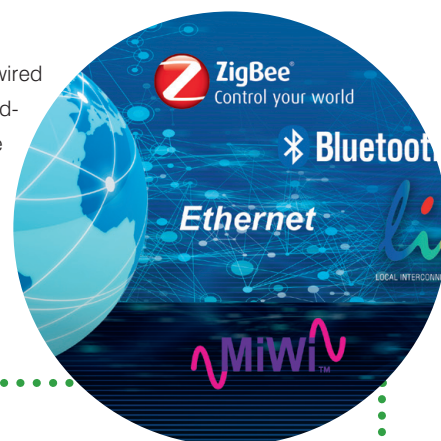
new PRODUCTS

CONNECTIVITY SOLUTIONS

Microchip offers support for a variety of wired and wireless communication protocols, including peripheral devices and solutions that are integrated with a PIC microcontroller (MCU) or dsPIC digital signal controller (DSC).

Microchip Technology Hong Kong

For more info on this product
wf.net.au/V266



SMALL, LOW-POWER BLUETOOTH MODULE

Bluegiga Technologies, a provider of Bluetooth and Wi-Fi connectivity modules and available from Glyn High-Tech Distribution, recently announced its BLE113 Bluetooth Smart module. The addition to the product range offers 30% lower peak power consumption, 30% smaller size and a hardware I²C interface simplifying connectivity to MEMS peripheral sensors.

One of the main benefits of the product is its capability to host custom applications. The Bluegiga Bluetooth Smart SDK allows applications to be developed for the BLE113 with the Bluegiga BGScript scripting language. In addition, Bluetooth Smart profiles can be quickly developed with the Bluegiga Profile Toolkit.

Glyn Ltd

For more info on this product wf.net.au/U039



IGBTS

International Rectifier's 1200 V ultra-fast insulated-gate bipolar transistors (IGBTs) are optimised for industrial motor drive and UPS systems. The devices leverage IR's field stop trench ultra-thin wafer technology that delivers lower conduction and switching losses.

Avnet Electronics Marketing

For more info on this product
wf.net.au/V367

USB HUB CONTROLLER CHIP

The μ PD720115 USB 2.0 hub controller chip from Renesas Electronics supports simultaneous USB communication and charging of portable devices such as smartphones and tablet PCs via a single USB connector.

The most important feature of the chip is its implementation of USB ports with battery charging functionality which supports the USB Battery Charging Specification, Revision 1.2 (USB BC 1.2).

Renesas Technology Singapore Pte Ltd

For more info on this product wf.net.au/U103

3D MODELLING AND ASSEMBLY TOOL

DesignSpark Mechanical is free 3D solid modelling and assembly software for engineers. The tool overcomes the two major barriers to entry faced by potential users who do not have access to a 3D design solution and can benefit from 3D modelling to quickly develop sophisticated concepts and products. These impediments are the prohibitive costs and the considerable investment in learning time associated with traditional 3D computer-aided design (CAD) tools.

“The launch of DesignSpark Mechanical is the first time a 3D design tool with this level of sophistication has been made freely available. Engineers will love using modelling software that is so intuitive and flexible,” said RS Components Global Head of Technical Marketing Mark Cundle.

The new tool is expected to bring major benefits to design engineers around the world and is available in multiple languages. It is a significant step in the evolution of the DesignSpark online resource hub for the engineering community. The software’s simplicity of use means that engineers and others involved in product development can become fully conversant with the software within minutes, rather than weeks or months required for becoming acquainted with the traditional 3D CAD tools.

“The use of DesignSpark Mechanical early in the design cycle can eliminate much of the time-consuming rework associated with traditional product development processes. This is a highly significant initiative that helps engineers bring innovative products to market quickly as DesignSpark Mechanical’s Standard Template Library (STL) output format enables direct export of designs to 3D printers,” Cundle said.

Empowering end-to-end design

With access to more than 38,000 3D models in the extensive DesignSpark online component library, DesignSpark Mechanical gives all engineers the ability to rapidly undertake an end-to-end design with professional-grade modelling tools that are at zero cost. RS Components has also collaborated with 3D content company TraceParts to provide access to millions of models from the online tracepartsonline.net CAD portal in DesignSpark Mechanical’s format.

“RS Components is partnering with SpaceClaim to launch DesignSpark Mechanical, which combines the power and ease of use of direct modelling technology from SpaceClaim with access to the massive RS library of standard parts, trusted by millions of engineers around the world,” said Rich Moore, vice president of business development for SpaceClaim.

“Feature-based CAD is more difficult to learn, compared with DesignSpark Mechanical. Users can now rapidly create 3D models to accelerate engineering design and improve their competitive advantage.”

The active base of 3D CAD seats globally is currently estimated at approximately 1.5 million. However, it is also estimated that there are an additional 20 million engineers globally who do not currently use 3D CAD, but could significantly benefit from a tool such as DesignSpark Mechanical. It will enable design engineers not only to be more creative, but it will also support a more efficient product development process, allowing the production of professional concepts right through to delivering highly detailed and dimensioned manufacturing blueprints.

Direct modelling methodology

DesignSpark Mechanical employs a powerful methodology called 'direct modelling', which is very different from traditional feature- or parametric-based 3D CAD software. The tool uses simple gestures that enable real-time editing and instant feedback, making it possible for engineers and others to create geometry and easily explore ideas and product concepts in 3D. All basic designs can be achieved quickly and easily via the use of the software's four basic tools - Pull, Move, Fill and Combine - in addition to its employment of familiar Windows keyboard shortcuts such as cut/paste, undo/redo, which makes it highly intuitive for new users.

A complementary 3D tool

The software can also be used as a complementary 3D tool in the product development process for the creation of early concept designs; for instance, alongside 3D CAD tools that are already in use today. The tool can remove bottlenecks in the early design process by allowing changes and additions in seconds, rather than having to wait for the CAD department using the traditional 3D tools to rework the design.

Export/import capabilities

3D designs can also be exported in STL, the standard file format to enable rapid prototyping builds and computer-aided manufacturing, in addition to providing the ability to quickly obtain bill-of-materials (BOM) quotes via the RS Components website. The tool can also import circuit layout files in intermediate data format (IDF) format from any printed circuit board (PCB) design tool, including the award-winning DesignSpark PCB software.

DesignSpark Mechanical is available for free download via www.designspark.com/mechanical. Support for the tool is available from the DesignSpark community at www.designspark.com.

RS Components Pty Ltd

Contact info and more items like this at wf.net.au/V226



WLAN RUGGED ETHERNET PORT ADAPTER

The connectBlue RWE251s wireless LAN rugged ethernet port adapter features WLAN dual-band functionality. It is suited to industrial and medical applications where the ethernet cable needs to be replaced with a robust wireless connection, or when the user needs to connect to a WLAN infrastructure.

M2M Connectivity

For more info on this product wf.net.au/U878



POWER ANALYSER

The Tektronix PA4000 power analyser delivers consistently accurate measurements, even with challenging power waveforms. While most power analysers rely on zero-crossing point to detect and track fundamental frequency, the analyser uses a unique method to lock onto signals, no matter how complex.

TekMark Australia Pty Ltd

For more info on this product wf.net.au/V366

**new
PRODUCTS**

ENVIRONMENTAL MONITORING SYSTEM

Network Technologies has added the ENVIROMUX-5D-IND high-temperature industrial environmental monitor to its medium-sized advanced server environment monitoring system range. The ENVIROMUX-5D-IND extends the temperature sensor range to cover 0 to 80°C.

The system utilises sensors to monitor critical environmental and security conditions. When an environmental sensor goes out of range of a configurable threshold or a security sensor is triggered, system administrators will be notified via email, alarm beacon, front panel LED indicators, web page notification, network management (SNMP) software or an SMS message (via external GSM or 3G modem).

Interworld Electronics and Computer Industries

For more info on this product wf.net.au/V177



DIGITAL SIGNAGE SYSTEM

iBase's Signature Book SI-38 is a professional-grade digital signage system with ultracompact dimensions, powered by the AMD Embedded R-Series Platform. The AMD Embedded R-Series APU allows the SI-38 to maintain a small form factor while still enabling powerful graphics performance in many different applications.

Backplane Systems Technology Pty Ltd

For more info on this product wf.net.au/V047

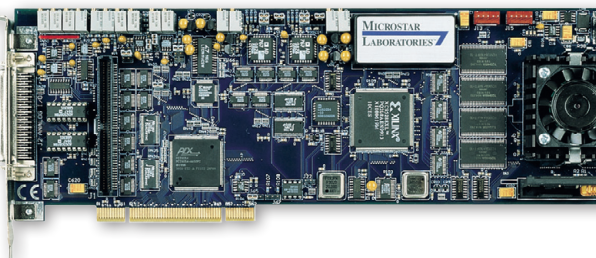
PCI DATA ACQUISITION BOARD

The DAP 5000a from Microstar Laboratories is suitable for applications that require Pentium-powered real-time processing under Windows. Even at maximum sampling rates, the combination of a fast processor with low latency - 0.1 ms task time quantum - allows computation in real time between samples and on-time response for control applications.

It comes with an onboard 233 MHz Intel Pentium processor with 32M of DRAM onboard memory and is compatible with other a-Series boards.

SciTech Pty Ltd

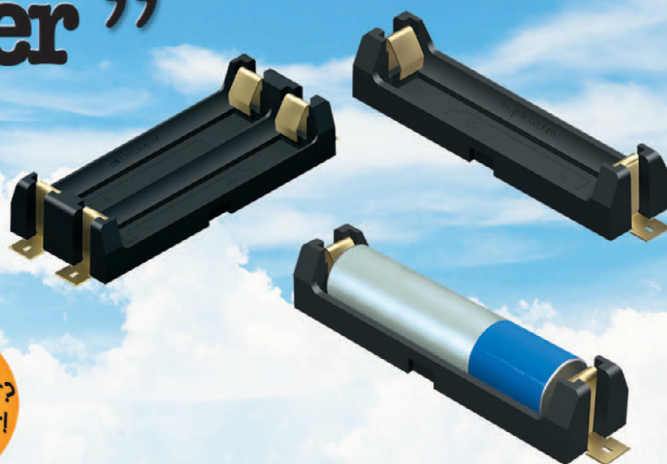
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**new
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DUAL-FEED ANTENNA

The TW4600 is claimed to be the smallest dual-feed, high-performance Iridium antenna available. The product's wideband dual feed patch element has a good axial ratio across the entire Iridium bandwidth. Unlike single-feed antennas, the device provides very good multipath rejection and a truly circular transmission response across the Iridium band.

It is housed in a compact IP67 magnetic mount enclosure. It is available with a 50 cm coaxial cable that allows for an Iridium modem to be mounted away from the weather yet still provide good communications coverage.

Step Global Pty Ltd

For more info on this product wf.net.au/U417

new PRODUCTS



AC/DC EMC FILTERS

Mornsun's compact FC-L01D and FC-L01D2 series of filters can be applied for use in analog circuits that are noise sensitive and require a higher level of EMC and EMI compliance.

DLPC Pty Ltd

For more info on this product wf.net.au/U948

HIGH-BANDWIDTH RF ADAPTER MODULES

The NI 5792 RF receiver adapter module, and NI 5793 RF transmitter adapter module, extend the company's portfolio of RF FlexRIO adapter modules and software-defined radio products to deliver very wide, instantaneous, real-time bandwidth solutions. Both modules feature 200 MHz of real-time bandwidth for reception and transmission of wireless waveforms, and take advantage of the NI FlexRIO user-programmable FPGA back end to facilitate real-time signal processing for each of the transmit and receive signal chains independently.

National Instruments Australia

For more info on this product wf.net.au/U932



POWER AMPLIFIER

The WPA0214N 0.8 W power amplifier (PA) from Wavelex offers wide frequency band operation, from 175 to 1400 MHz, 50 Ω impedance and 29 dBm P1dB.

The amplifier is suitable for a range of applications, including VHF, UHF, avionics, GPS, PA driver amplifiers, RF bench tests and fixed wireless communication. The PA is packaged with precision machine housings in the company's IP-2 package. The company's products are 100% production tested on all minimum and maximum electrical specifications.

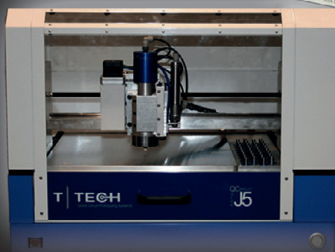
Arrow Electronics Australia Pty Ltd

For more info on this product wf.net.au/V369

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WEARABLE COMPUTERS TO AID BIONIC EYE RESEARCH

Australian researchers are developing a wearable computer and augmented reality kit to aid Australia's bionic eye research project.

University of South Australia's Wearable Computer Lab, based at Mawson Lakes, has put the finishing touches on the 'backpack' kit and key staff members are in Canberra to deliver the first prototype to National Information Communications Technology Australia (NICTA).

"We are collaborating with NICTA and the Bionic Vision Australia to develop prototype hardware tailored to simulations of prosthetic vision," says Wearable Computer Lab head Professor Bruce Thomas.

"Using our system, NICTA will be able to run a study with any person, and they will be able to see as close as possible what someone with a bionic eye would be seeing," says co-director Dr Ross Smith.

Bionic Vision Australia aims to restore a sense of vision to people with diseases such as retinitis pigmentosa. A video camera fitted to a pair of glasses will capture and process images. These images will be sent wirelessly to a bionic implant at the back of the eye which stimulates dormant optic nerves to generate points of light that form the basis of images in the brain.

UniSA researchers have developed the wearable processor and augmented reality kit to be used to develop and evaluate new algorithms for orientation and mobility.

Additional systems of the 'backpack' kits will then be used for extended trials at NICTA, as part of Bionic Vision Australia's bionic eye project.

UniSA's chief researcher Prof Bruce Thomas says the point of the 'backpack' system is that it will allow NICTA to test ideas about the bionic eye, without a bionic eye having to be implanted.

Prof Thomas says it is exciting to be involved in world-leading research which provides a glimmer of hope to those left in the dark.

"Being chosen to be involved in the Australian project is testimony to the Wearable Computer Lab's reputation and capabilities.

"Our prototyping laboratory allows us to construct our own custom electronics, and for a computer science department, this is very unique. The only other computer science departments in the world with similar capabilities are MIT and Georgia Tech in the US."



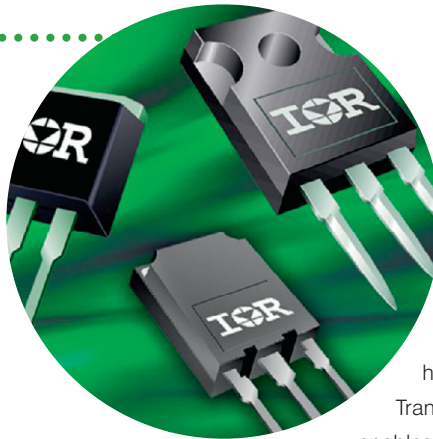
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IGBT SELECTION TOOL

International Rectifier has enhanced its Insulated Gate Bipolar Transistor (IGBT) selection tool that enables design optimisation in a wide range of applications including motor drives, uninterruptible power supplies (UPS), solar inverters and welding.

Avnet Electronics Marketing

For more info on this product
wf.net.au/T415



1-10 W AC/DC POWER SUPPLIES WITH ULTRA WIDE INPUT VOLTAGE RANGE

RECOM Electronic has provided a claimed innovation in low-power AC/DC converters; all the models from 1-10 W in the RAC series accept AC input voltages down to 80 VAC. Thus, the wide-range 80-265 VAC input or ultrawide-range 80-305 VAC input converters are compatible with all mains voltages worldwide, from the Japanese 100 VAC to the European 230 VAC and the American 120/208/277 VAC networks.

RECOM Asia Pte Ltd

For more info on this product wf.net.au/U931

RUGGED 8-SLOT ETHERNET CHASSIS

The NI cDAQ-9188XT is an 8-slot NI CompactDAQ ethernet chassis designed for distributed or remote measurements in rugged environments. With a temperature range of -40 to 70°C, 50 g shock, 5 g vibration operating specifications and Class 1 Division 2 and Ex hazardous location certifications, the user can take any measurement, anywhere.

A single chassis can measure up to 256 channels of electrical, physical, mechanical or acoustic signals. By combining more than 50 sensor-specific NI C Series I/O modules with NI Signal Streaming technology, the platform delivers high-speed data and ease of use in a flexible, mixed-measurement system. The device can measure in minutes with the NI-DAQmx software and automatic code generation using the DAQ Assistant.

National Instruments Australia

For more info on this product wf.net.au/U939



MINI CONNECTORS

The Spec Pak mini 3-pole connector, from Anderson Power Products, is a small, IP68, sealed connector UL rated to carry up to 22 A per contact at 600 V.

Soanar Limited

For more info on this product
wf.net.au/U822



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LED MAGNIFYING LAMPS

O.C. White has launched the ESD-safe Green-Lite series of LED magnifying lamps - made in the USA, all metal, ruggedly constructed and with long reach and strong springs. They have clear optical grade 4 diopter (2x) magnification that meets IPC-A-610E.

Bondline Static Control Solutions Pty Ltd

For more info on this product wf.net.au/V055



**new
PRODUCTS**

RUGGEDISED TABLET CASE

The iKey StreetCase is a ruggedised ABS polycarbonate case with a Bluetooth-compatible keyboard. The case is designed to meet the high shock and vibration specifications demanded for optimum in-vehicle use.

Interworld Electronics and Computer Industries

For more info on this product wf.net.au/U671

SINGLE BOARD COMPUTER

IEI's full-size PICMG 1.3 CPU card supports LGA1155 Intel Xeon E3/Core i3/Pentium/Celeron CPUs. The SBC utilises Intel's C216 system chipset and supports DDR3, VGA/DVI-D, Dual GbE, SATA, Mini PCIe and high-definition audio.

The SPICIE-C2160 PICMG 1.3 server-grade solution supports up to 16 GB 1600 MHz dual-channel DDR3 SDRAM and features dual independent display by VGA and DVI-D as well as a PCIe Mini expansion slot.

ICP Electronics Australia Pty Ltd

For more info on this product wf.net.au/V327

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ALTIUM PCB DESIGN LIBRARIES

Altium has released a range of component libraries for board-level designs using Linear Technology power management devices. Available now from AltiumLive, the release delivers more than 13,000 new board-level component models and corresponding supply chain information, such as real-time price and availability data from distributors and vendors including Digi-Key, Mouser and Farnell, directly to designers using Altium's electronics design software Altium Designer.

Altium Limited

For more info on this product wf.net.au/V308



MULTISYSTEM IGNITION ANALYSER

General Technologies' MM-TA500 is a multisystem ignition analyser suitable for automobile, industrial, aviation, agricultural and marine applications. The simple-to-use tachometer requires no special adapters, cables or a scope.

Durst Motor & Electric Industries Pty Ltd

For more info on this product wf.net.au/V363



PROXIMITY SWITCH

The TURCK Q80WD non-flush inductive proximity switch detects all metals with 75 mm switching distance. The sensor can be mounted, partially embedded or fully flush - its switching sensitivity adjusts itself to the mounting conditions.

Turck Australia Pty Ltd

For more info on this product wf.net.au/T891

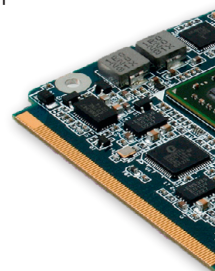
RFID ANTENNAS

Unique Micro Design has taken on the distribution of Times-7 RFID antennas. The Times-7 SlimLine range of RFID antennas is suitable for a wide range of applications such as: conference and people tracking, event and race timing, baggage handling, logistic and supply chain asset management and retail and customer interaction.

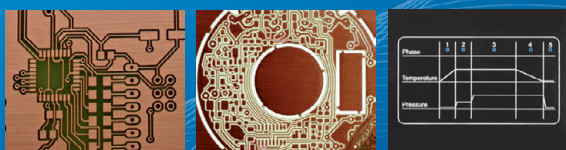
The range includes: SlimLine multipurpose antennas - suitable for applications such as space-constrained and customer-facing environments, flush wall and door frame mounting and SlimLine shelving and cabinet antennas - suitable for RFID-enabled cabinets and RFID smart shelving solutions; proximity/near field UHF antennas, suitable for enclosed spaces and when a small footprint is required.

Unique Micro Design Pty Ltd

For more info on this product wf.net.au/V309



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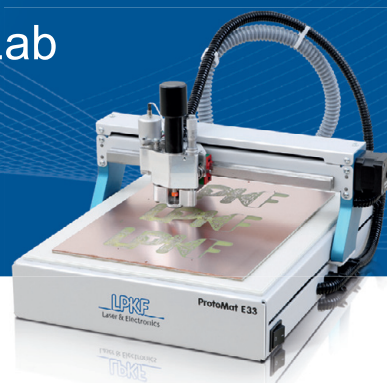


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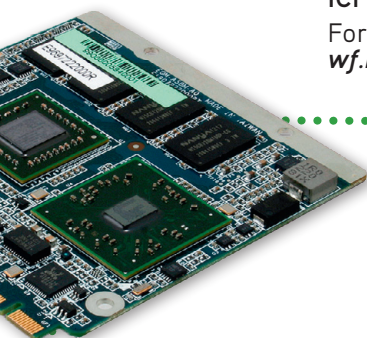


CLINICAL ASSISTANT TABLET PC

ICP Electronics Australia has released IEL's IceFire2 10.4" Mobile Clinical Assistant. Based on the Intel Atom N2800 Dual Core platform and powered by Windows Embedded Standard 7, the compact tablet PC is designed specifically for healthcare environments, to increase medical quality, safety and efficiency.

ICP Electronics Australia Pty Ltd

For more info on this product
wf.net.au/V087



EMBEDDED ACCELERATED PROCESSING UNIT

Avalue's AMD Embedded G-Series platform includes a low-power CPU and advanced GPU integrated into a single embedded accelerated processing unit (APU) - the EQM-A50M Qseven Module. The board allows for high-performance multimedia content delivery in a small form factor and a power-efficient platform for a variety of embedded designs.

Backplane Systems Technology Pty Ltd

For more info on this product
wf.net.au/V328

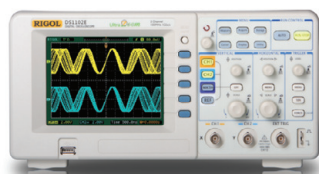
MULTICHIP LEDs

The Osram Ostar Stage LEDs from Osram Opto Semiconductors offer luminance of 48 million candelas per square metre (Mcd/m²) and tunable colour tones from cold white to warm white. The LEDs are suitable for use in moving head spotlights on stage, for booth lighting at trade fairs and for architectural lighting.

Osram Australia Pty Ltd

For more info on this product
wf.net.au/T752

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ALGORITHM MODELLING

FOR PARKING SENSORS

A global vendor of automotive AMS ICs contracted ASTC consulting on algorithm design and feasibility for a next-generation automotive parking assistance sensor ASIC program, a derivative of the predecessor ultrasonic sensor transmit/receive (Tx/Rx) signal conditioner system chip.

ASTC design consulting services and ASTC VLAB ESL technology were used to model and analyse DSP algorithms for an automotive parking sensor AMS ASIC, with accelerated architectural exploration and development for the next-generation device architecture.

The team, including client and ASTC consulting, was defining the new architectural specification, considering updates such as improved measurement range, size and simplification for applications, and further looking towards design and verification tasks in the implementation phase.

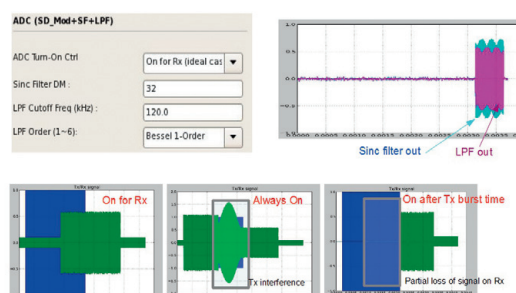
ASTC/VLAB Works engineers partially modelled system components like the transmitter/receiver, channel and DSP signal paths. Understanding their properties and performance was critical to redefine this next-generation ASIC. Analysis of proposed IQ demodulation and sigma-delta ADC techniques impact on performance also helped in specifying the required LSD (low side driver), LNA (low noise amplifier) and further DSP configurations. VLAB was used to build the entire algorithmic and system-level ultrasonic sensor model, with standard Python language support, for very complex models, flexibility in system configuration, user interface for running the system and system analysis.

ASTC's broad, multidisciplinary expertise was key, including automotive sensor ASIC applications, AMS architecture exploration and design methodology, ready availability of off-the-shelf modules and templates for ESL modelling, advanced VLAB solutions and ESL expertise, especially with Python and Python libraries for scientific computations and data analysis integrated in VLAB.

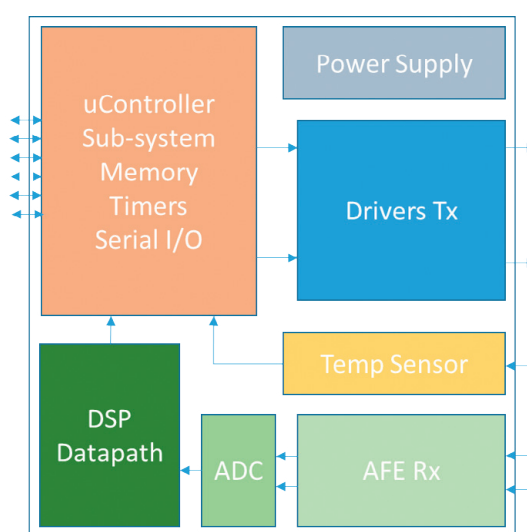
Imagine an automobile with surrounding objects or obstacles, for example, between 0.2 and 10 m. From the virtual platform, Tx sends out an ultrasound signal which travels away to the object that reflects it. The channel, ie, signal travelling path, introduces a Doppler shift, noise and attenuation into the receive path, all distorting the Rx signal. The signal arrives back to the Rx side and all effects are processed and analysed via LNA and ADC followed by a DSP algorithm.

Solutions used included VLAB, an environment for Python algorithm and system model development, debug and simulation, the numerical and scientific computations python toolbox, a model components library and an integrated ESL sensor system model platform.

Engineers from ASTC consulting services, using VLAB and Python technology, delivered the system model and DSP signal path. The system included functionality for an ultrasound Tx/Rx system with



Dashboard analysis.



ASIC block diagram.

a moving transducer, a Tx sine wave bouncing off the fixed target object, a returning Rx sine wave with Doppler shift and distance/speed estimation via DSP. The VLAB DSP dashboard analysis shows the Doppler shift effect on Ultrasound Tx/Rx system, plots both Tx and Rx signals, as well as each step of DSP operation phases.

Block models included: Tx with sine wave; channel; Rx analog LNA gain and sigma-delta modulation; Rx signal envelope detection DSP; IQ demodulation DSP.

DSP dashboard parameters related to channel were analysed in VLAB, showing how the signal is distorted by attenuation and noise through the channel, how the vehicle's speed adds the Doppler shift frequency on Rx, and distance, which affects the vehicle's speed estimation via DSP operation. The DSP dashboard for Tx signal parameters shows that the signal is a sine wave defined by the ultrasonic frequency and is in the range of 40 to 100 kHz. The sampling frequency is important to send sampling data for Rx ADC. The burst time is critical both for computing the Doppler shift effect and ensuring the signal has arrived at the receiver (Rx) side.

The DSP dashboard parameters for IQ demodulation analyse the Doppler shift frequency obtained from the Rx signal via DSP operation, where IQ demodulation uses the same Tx signal carrier frequency; the low pass filter (LPF) is designed with a selectable cutoff frequency and 1st to 4th order Bessel or Butterworth filter, to remove the carrier frequency; and the Doppler effect modulated into the Rx signal resulting from the vehicle's speed is estimated through FFT and finding max frequency values.

The DSP dashboard result for the Doppler effect shows these variables, while all signal plots on the DSP paths are available in both time and frequency domains in the frequency response menu: Doppler shift frequency (F_r) calculated theoretically; Doppler shift frequency (F_p) found from DSP operation; comparison: $(F_r - F_p)/F_r$ %; estimated speed of the vehicle from F_p .

The DSP dashboard features: GUI run control of the system, with DSP parameter changes; plots for all signal stages in both time and frequency domains; design for required filters, to easily extract coefficients; ability to save DSP signal data into files that can be referenced for hardware design and implementation; loading, saving and restoring configuration files for all DSP parameters; and DSP diagram images for the system description and hardware design.

Project goals were met with architectural analysis, algorithm development and implementation, using the advanced new DSP dashboard capabilities. It promoted design re-use and leverage, using the existing chip to jump-start the next generation.

Modelling work delivered during the architecture definition phase, using VLAB and Python for high-level modelling of DSP signal processing algorithms and digital filter designs, can next be highly leveraged in the subsequent ASIC hardware development. VLAB Python models are easily combined with more detailed VLAB SystemC design models, to simulate the system via a real hardware-like interface and registers (for read/write) within the VLAB environment, along with a GUI window where users can also configure and check system performance.

ASTC Design

Contact info and more items like this at wf.net.au/V357

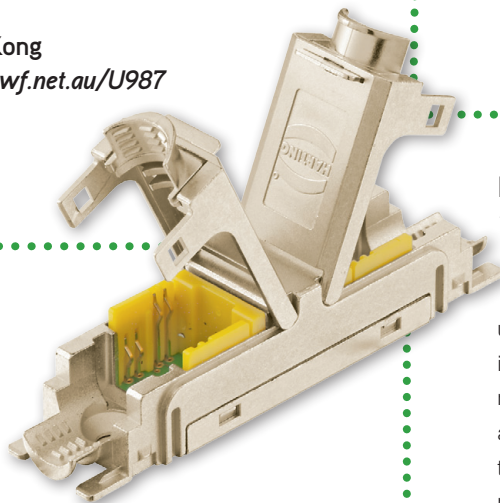
POWER MANAGEMENT CONTROLLER

Microchip's MCP19111 power management controller combines the flexibility and I²C communication of digital DC/DC power conversion with the speed, performance and resolution of analog-based control. The product is a hybrid, mixed-signal controller which combines analog and digital power management into a single chip.

By integrating an analog-based PWM controller, a Flash-based 8-bit PIC microcontroller and MOSFET drivers for synchronous, step-down applications, the device enables configurable, high-efficiency power conversion. With the transient performance of analog power conversion, the unit eliminates the need for a high-MIPS microcontroller or a high-speed A/D converter, minimising cost and power consumption.

Microchip Technology Hong Kong

For more info on this product wf.net.au/U987

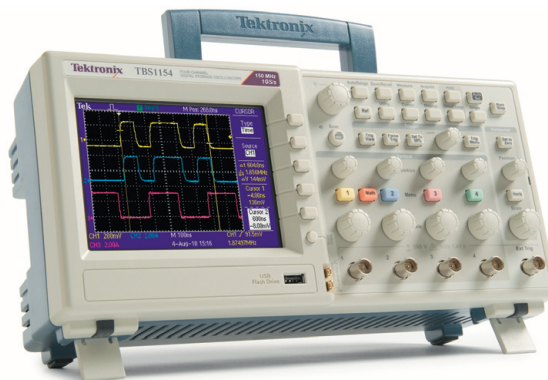


CABLE EXTENSION

HARTING's Ha-VIS preLink technology is now complemented by another product, the Ha-VIS preLink Extender. This component of the cabling system enables the simple extension of transmission paths in data network cabling. In addition, it allows fire zones to be bridged and subscriber ports to be directly connected to the terminal block connector without the need for intermediate patching. It offers particular benefits for broadcast TV studio, theatre, AV multimedia or theme-park installations.

HARTING Pty Ltd

For more info on this product wf.net.au/U503



DIGITAL STORAGE OSCILLOSCOPES

The Tektronix TBS1000 series digital storage oscilloscopes come with 4-channel models to deliver digital real-time sampling, pass/fail testing and easy-to-use controls.

NewTek Instruments Pty Ltd

For more info on this product wf.net.au/V350

INSTRUMENTATION AMPLIFIER

The AD8422 from Analog Devices, a high-precision, low-power, low-noise, rail-to-rail instrumentation amplifier with ultralow distortion processes signals with ultralow distortion performance, load independent over its full output range. Very-low bias current is said to make the amplifier error-free with high source impedance, allowing multiple sensors to be multiplexed to the inputs. Low-voltage noise and low-current noise make the device a suitable choice for measuring a Wheatstone bridge.

The device uses robust input protection that ensures reliability without sacrificing noise performance. The device has high ESD immunity, and the inputs are protected from continuous voltages up to 40 V from the opposite supply rail. A single resistor sets the gain from 1 to 1000.

Mouser Electronics

For more info on this product wf.net.au/V104

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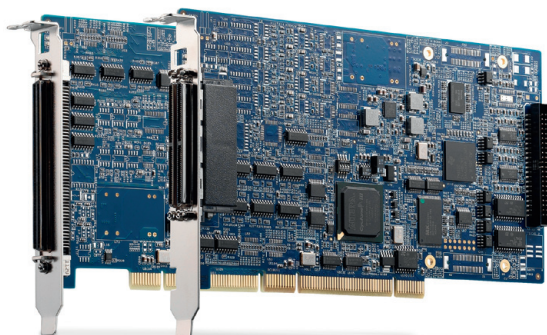
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PULSE TRAIN MOTION CONTROLLERS

The AMP-204C/AMP-208C DSP-based 4-/8-axis advanced pulse train motion controllers enable high pulse output and encoder input frequency up to 6.5 and 20 MHz respectively.

ADLINK Technology Inc

For more info on this product wf.net.au/V294

1553 TO ETHERNET APPLIANCE/CONVERTER

Alta Data has combined the 32-bit FPGA protocol engine Alta-Core with a real-time IP/UDP thin server in a small, low power, rugged box. The user can implement their application with the same feature-rich application programming interface, AltaPI, as used with standard cards often without even recompiling, providing code portability.

Metromatics Pty Ltd

For more info on this product wf.net.au/T336

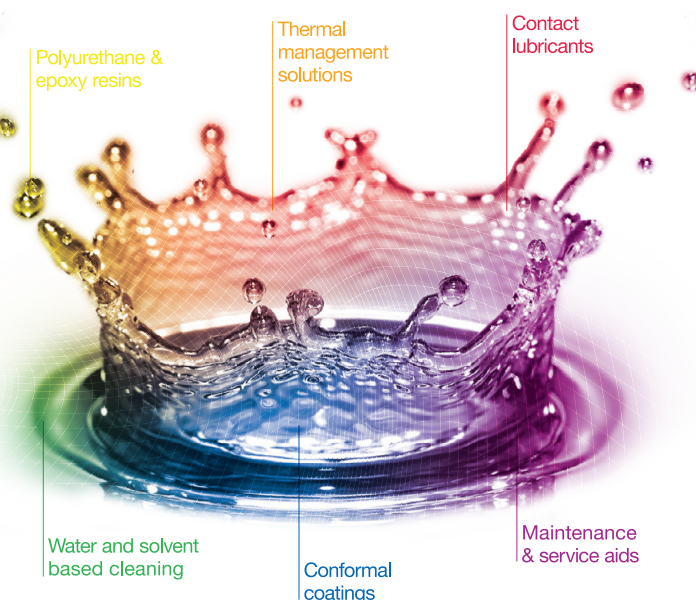


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MIND-POWERED SYSTEM

HELPS IMPROVE ROAD SAFETY

Australian electronics company Emotiv has developed a new system designed to reduce fatalities and improve road safety. The system communicates with the car and when the driver's level of attention drops the car safely slows down, alerting the driver to their lapse in concentration. Emotiv's system is featured in the Royal Automobile Club of Western Australia's (RAC) attention powered car designed to raise awareness about the deadly impact of inattention on our roads.

The company's EEG neuro headset connects brain activity to the car's engine via customised software. The headset has 14 sensors detecting electrical activity from the frontal, temple, parietal and perceptual areas of the brain. The amount of activity in these areas registers what the driver is cognitively processing or if they are zoning out. It can also tell if the driver is task switching, which means they're paying attention, just not to driving. A gyroscope, GPS and an accelerometer are also included to improve accuracy and to measure a whole range of variables including head movement.

Dr Geoffrey Mackellar, chief technical officer at research company Emotiv, said discerning when someone's actually paying attention and when they're not is a very difficult thing to do, especially in a driving context.

"We can't read thoughts, but we can figure out to a fair approximation what's going on in the brain, in general terms. We can generally detect if someone is alert, if they're hearing things, whether they're speaking, just from activity in different parts of the brain," Dr Mackellar said.

"We wanted to look for specific attention related to driving, and we can detect that with quite good accuracy." The technology has been installed into a 5-star ANCAP safety rated Hyundai i40 which will only run at full capacity when the driver is paying attention.

"The impact of inattention is now comparable to the number of deaths and serious injuries caused by speed and drink driving which are all contributors to WA consistently having the worst fatality rate of any Australian state. Nationally, it is estimated inattention was a factor in 46% of fatal crashes," said RAC Executive General Manager Pat Walker.

"Over the past 20 years, WA has gone from best in class to worst in class. Since 2006 we have consistently been above the national fatality rate and alarmingly more than half of fatalities in WA happen on our country roads. If WA's fatality rate came down to the national rate, more than 45 lives would be saved each year."

The RAC will use the attention-powered car to directly engage the WA community, raise awareness about inattention and to find possible solutions to try to help save lives on our roads.

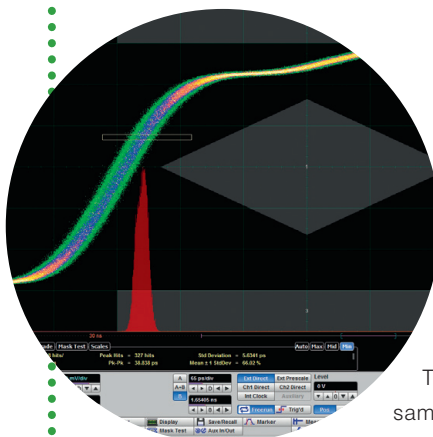
CONDUIT CLAMPS AND CABLE BRACKETS

Anchorage Group's conduit clamps, cable clips and saddles are manufactured from a variety of materials to suit most application. The group produces copper saddles, stainless steel saddles and galvanised saddles of varying thicknesses for light duty through to extreme environments. The conduit saddles and cable brackets are available in single- and double-saddle configurations. All saddle clamps can be supplied with or without base plates and fasteners.

SWIFT Metal Services Pty Ltd

For more info on this product wf.net.au/V275

new
PRODUCTS



SAMPLING OSCILLOSCOPES

The PicoScope 9300 series sampling oscilloscopes with PicoSample 3 software offer fast waveform building, low noise and jitter, and an advanced set of measurement and display features.

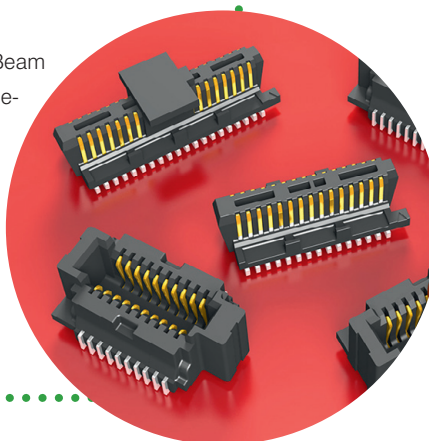
Emona Instruments Pty Ltd
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INTERCONNECTS

Samtec has expanded its Razor Beam LP product line to include an ultrafine-pitch, low-profile system for applications where space is limited and high-speed performance is required.

Samtec ANZ

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the GRUMPY page

TECHNOLOGY GONE MAD

Mike Smyth, specialist technical writer

I can't help feeling that we are being led by the nose when it comes to technology. Now, don't get me wrong, I'm not against technology but there does seem to be a spate of nose pulling, especially among consumer devices.

Once upon a time there was the novelty of mobile phones, house brick size maybe but we were overawed by the sudden freedom and kudos they gave us when they worked. And then, as they got smaller, they got more sophisticated and grew screens that took up much of the front panel. Instead of being able to make just a phone call, we could send printed messages. Then we could send emails via an internet connection while on the back lurked the single eye of a camera. Then they developed radios and games and became so complex that making a simple phone call was a challenge to man and machine.

They were no longer just phones. They were all sorts of other things that most people hadn't dreamt about until they were thrust together in sometimes an uneasy alliance. The simple act of being able to make and receive phone calls had been subjugated to this all-thinking, all-doing device that then became not only expensive but carried features that many people did not want and did not know how to use. But they had no choice. It was all or nothing.

Now take home entertainment. Once we had AM radio till FM radio took us a huge leap forward in terms of quality. Now we have digital radio which, from the point of view of the consumer, is not streets ahead as was FM over AM. I would match a well set up FM receiver and amplifier against a digital any day of the week and for less money.

In the beginning we had VCRs, the height of technology that could trundle a tape past a couple of heads inside a mystery box of convoluted mechanics and advanced electronics. The machine gave superb colour pictures and stereo sound long before we had to show it all in a special media room on a screen the size of one of the Opera House sails.

Yes, its limitations were the length of the tape and compared with the quality of a digital television picture it was rather like looking at the world the morning after the night before. But the quality was good enough for most people. Now there is the PVR, which will take over from the VCR at the end of the year when the analog television service switches over to pure digital.

Then there is sound. From the 78 rpm record through the long-playing stereo vinyl to the CD and Blu-Ray have been great strides forward. The difference between the vinyl record and a CD is dramatic - no distortion and a silent background. But the difference between CDs and Blu-Ray and DVDs is far less marked, sound wise, which I think is proved by the relatively little program material available for the format.

Yet whatever you have, from a waxed cylinder to a Blu-Ray, you will need at least a 5 to 1 amplifier with at least four speakers and a subwoofer that will peel the paint off the walls and shake the neighbours' arthritic bones when in full boom. However, there may be light at the end of the tunnel. Consumer resistance to this regular and all-too-frequent update pattern of all things electronic is showing up. Some of the latest phones and tablets are not selling nearly as well as had been expected so maybe manufacturers will get the message that we don't really need annual minimum changes to a device. And don't even mention what this habit might be doing to resources and the environment.

There seems to be a growing number of people that would like a good amplifier feeding good speakers without the need to test the house foundations with a boom box. They would like a mobile phone that just makes and receives phone calls and is cheap, small and reliable. Many seem to be weary of being forced to buy devices that have features they will never use.

And finally, perhaps the height of technology out of control are the smart toilets in Tokyo that can be operated by a smartphone to perform flushing and musical themes and have heated seats. This surely is convenience gone mad.



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- 5 Engineer - Process
- 6 Engineer - Project
- 7 Purchasing/Procurement
- 8 Technician - Maintenance/Service
- 9 Technician - IT
- 10 Technical Officer
- 11 Scientific Officer - R&D
- 12 Scientific Officer - QA
- 13 Consultant
- 14 Contractor/Tradesperson
- 15 OHS/EHS
- 16 Education/Training
- 17 Student-Undergraduate/Apprentice
- 18 Analyst
- 19 Sales/Marketing

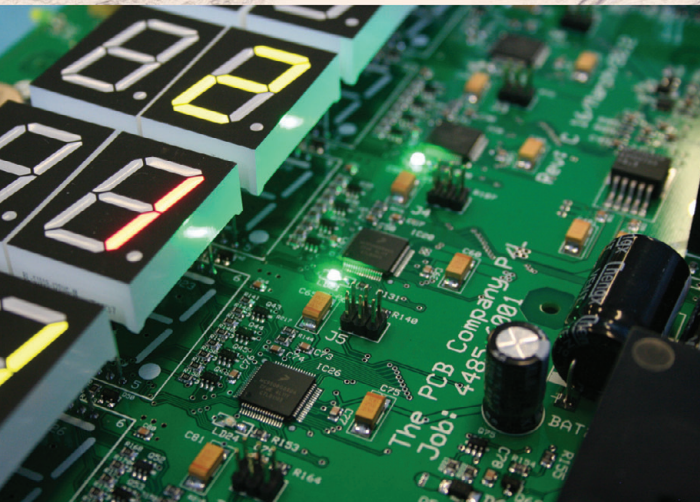
List (B) Industry

- 1 Agriculture/Rural
- 2 Building/Construction
- 3 Chemicals/Allied Products
- 4 Communications Systems
- 5 Defence/Military
- 6 Education
- 7 Emergency Services/Law Enforcement/Security
- 8 Engineering Services
- 9 Environmental Services
- 10 Finance/Banking/Insurance/Legal
- 11 Food Industry - Bakery
- 12 Food Industry - Beverages
- 13 Food Industry - Confectionery
- 14 Food Industry - Dairy
- 15 Food Industry - Fruit & Vegetables
- 16 Food Industry - Meat
- 17 Government - Federal
- 18 Government - State
- 19 Government - Local
- 20 Health/Hospital
- 21 Instrumentalities (eg CSIRO)
- 22 IT - Networking
- 23 IT - Security
- 24 IT - Storage
- 25 IT - Wireless
- 26 Laboratory - Analytical
- 27 Laboratory - Clinical/Medical
- 28 Laboratory - Life Sciences
- 29 Logistics/Transport/Warehouse
- 30 Manufacturing
- 31 Mining
- 32 Oil/Gas/Coal
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