

## Radar Scope

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The company has transitioned to a fabless mixed-signal semiconductor company specializing in the design and development of multi-band RFICs. In September 2010, Elonics closed a £6.1M (\$9.5M) Series B round led by Scottish Equity Partners and supported by Octopus Ventures, alongside a number of existing investors.

The global tuner market is expected to be worth in excess of \$700 million per annum as the market transitions from 50-year old metal can technology to silicon chips. Elonics has achieved a breakthrough in RF tuner technology, solving the perennial problem of combining high performance with low power and cost.

Elonics has developed an RF architecture called DigitalTune that is the foundation for a family of silicon tuners for television and radio. The technology platform, designed in CMOS, significantly improves signal path management and can be easily configured to support television and radio standards across the globe. The Elonics solution also consumes 1/50th of the power of traditional solutions.

The technology allows manufacturers to design high performance consumer electronics products with unrivalled performance, power consumption and low system cost. The E4000 series of silicon tuners, Elonics' first product family, is targeted at the reception of multi-standard digital TV and radio.

David Srodzinski, Founder & Managing Director (previously a founding member of Level One,

Glasgow, which was acquired by Intel in 2001)

Steve Wood, Business Manager (previously the imaging a business development manager at Wolfson)

Alf Sheppard, Commercial Manager (previously a founding member of the Cadence Scottish Services Operation where he served as Services Business Manager & Solutions Architect)

Barbara Srodzinski, Secretary (14+ years experience with three separate startups)

Alba Centre, Kirkton Campus  
Livingston, Scotland EH5 47EG  
UK

Tel: +44 (0) 1506 402485

Fax: +44 (0) 1506 407001

www.elonics.com

## Startup Profiles

### Fresco Microchip

Fresco Microchip was founded in 2005 to develop "leading edge RF, mixed-signal, and digital signal processing architectures for the multi-billion dollar consumer electronics market." The company secured Series A funding in July 2005 and has raised \$40 million to date from Celtic House and Ventures West. Fresco has 55+ employees.

By leveraging unique system design expertise in RF, analog and DSP, Fresco has created a technology that reduces system solution cost with optimal performance. Its technology and its cost and performance advantages are applicable to virtually any radio including television, mobile and wireless applications. The company has 13 patent filings in the US, China, Korea, Europe and India.

Fresco's initial target is the global television market. According to

industry estimates, more than 550 million tuner/demodulators are sold each year across a broad range of consumer electronics including televisions, gaming devices, DVD R/PVRs, set top boxes, netbooks and PCs. More than 50% of these products support hybrid (analog + digital) or analog only broadcasts, and many industry analysts agree that analog broadcast will continue to play a significant role in most regions for the next 5 to 10 years. Hybrid tuners have the highest performance requirement and highest ASP, according to Fresco.

Typical TV receivers require a tuner, extensive IF processing, digital and legacy video demodulator chips. IF processing is typically accomplished with multiple SAW filters, active amplifiers and dozens of passive components. Fresco's hybrid demodulators are the first single-chip solutions to deliver fully integrated universal legacy audio/video demodulation (NTSC, PAL, SECAM) and multi-standard digital IF processing.

Fresco believes its devices are the industry standard for picture quality. Fresco's products deliver sharper visual quality, richer brightness and more vivid colors while providing more reliable and broader reception coverage through the home than previously possible. Fresco's demodulators work with both silicon & CAN tuners. They have an ultra-thin profile/footprint, allowing them to be used in ultra-thin TVs, whereas standard video SAW filters have a high profile and ultra-slim SAWs are expensive.

Fresco's agileSP architecture includes four key technologies, WAVE, iSAW, perfectTUNE, and smartTUNE. Television interference pat-

terns resulting from distortion in existing tuner implementations are significantly reduced by smartTUNE technology. iSAW wideband IF processing technology eliminates the need for dozens of passive components, external higher-profile IF SAW filters and several variable-gain amplifiers. perfectTUNE locks in signals without the need to change the tuner center frequency, eliminating the need for automatic and manual fine tuning.

The Fresco FM1100 chip family is the first single chip analog demodulator and digital IF processor for the global hybrid TV markets. The FM1100 reduces costs by 33% over conventional solutions while delivering television grade performance in an ultra slim package. The chip improves picture quality, enhances performance, reduces component count, and lowers power and cost. The devices provide the industry's best adjacent channel rejection for digital IF signals.

Integrating the company's agileSP architecture, the FM1151 marks a new quality standard for picture clarity by significantly reducing the smearing and ringing artifacts common in existing solutions.

The FM2050 is a low power single-chip demodulator for high quality universal analog terrestrial (NTSC, PAL, SECAM), analog cable, and DVB-T digital television broadcasts. The chip delivers unmatched performance on key analog demodulation benchmarks, which are essential for the successful rollout of hundreds of millions of high quality hybrid (analog and digital) television platforms required by the DTV transition across Europe and Asia. The FM2080 is a single-chip demodulator for universal

analog (NTSC, PAL, SECAM) and DVB-T digital television broadcasts.

Eight of the top 10 tuner manufacturers, who account for ~80% of tuners shipped worldwide, are now in production, or have active designs, using Fresco inside.. Fresco believes it is the fastest growing fabless semiconductor company, going from initial production to more than 20 million units shipped in just over 3 quarters. NXP was the Europe defacto standard; however, Fresco said it has displaced NXP and is the #1 choice for new designs.

Several television models using Fresco's chips inside, ranging from small to large flat-panel screens from the world's leading consumer brands, are available now in major retail outlets across the U.S., Canada, Europe, Brazil, China, and several other Asia-Pacific countries. According to industry experts, the company will be a top supplier of receivers for hybrid televisions in Europe this year.

LG Innotek, the world's largest tuner Supplier, has selected Fresco's universal analog demodulator and digital IF processor IC for new global hybrid (analog + digital) tuner modules. Integrating Fresco's technology enables LG Innotek to streamline the supply chain by offering a global tuner module for all hybrid markets. SANYO Tuner Industries has selected the FM1150 analog demodulator and digital IF processor IC for the ultra thin UDA series tuner family, which are targeted for North American and European hybrid television markets. Panasonic Electronic Devices (PED) has selected the FM1151 universal analog demodulator and digital IF processor IC for its latest hybrid tuners. PED's next generation VP35HR tuner family is designed for

terrestrial and cable broadcasts across Europe, Asia and Latin America. NuTune, the world's largest independent tuner supplier, has also selected Fresco.

Lance Greggain, founder, President and CEO (previously founder and CEO of Jaldi Semiconductor, which was acquired by Pixelworks whereupon he served as VP and GM, and CTO and VP Product Development at Genesis Microchip)  
Chris Ouslis, co-founder and VP, IC Technology (previously Director of Mixed-Signal IP at Synopsys VP of Mixed-Signal Engineering at InSilicon and co-founder and VP, Engineering at Xentec of Xentec)

Scott Baker, co-founder & VP of Engineering and Operations (previously VP, Engineering at Silicon Optix)

Mike Gittings, VP of Marketing (previously director of marketing for AMD's digital television business unit)

John Tryhub, VP Sales (previously Director, Systems Engineering and Marketing Director, Video Products at Genesis Microchip)

Robert Bosomworth, Controller

110 Cochrane Drive, Suite 200  
Markham, Ontario L3R 9S1

Canada

Tel: 905 480 9109

Fax: 905 480 9484

[www.frescomicrochip.com](http://www.frescomicrochip.com)

## Si-Ware Systems

Si-Ware Systems was founded in December 2003 to be a semiconductor product design and development solutions provider. The company's vision is to be a world-class global provider of highly differentiated analog/mixed signal and RF solutions as well