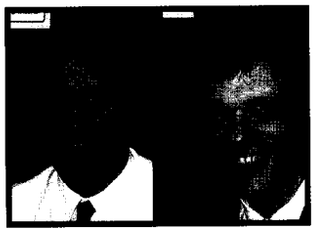
# Filtronic splitting off compound business

For the six months to end-November 2000, sales for £147.6m (up 57% on the same period of 1999). But despite sales for Filtronic Compound Semiconductors of £5.1m (up from 1999's £3.1m), the unit made an operating loss of £7.4m (up from $1.9m in 1999).

The Santa Clara fab increased merchant sales (mainly for GaAs pHEMTs for fibre-optics) but made a loss; the pHEMT fab at Newton Aycliffe, County Durham, UK is costing about £1m per month to operate while producing a larger-than-expected yield that outstrips internal demand. Also, the timescale to establish and qualify products with customers had been underestimated.



*Filtronic Compound Semiconductors has made two new appointments for its Newton Aycliffe plant: David Smith, as Strategic Business Manager (left) and Peter Bradly, as Product Marketing Manager (right).*

To stem cash flow, Filtronic Compound Semiconductors is now being operated as a separate business (with Filtonic plc's director of technology professor Christopher Snowden as CEO) while in discussions with potential commercial and financial partners.

# Si/GaP/GaAs HBT patent

After in June 1999 being granted a patent on the design and architecture for a Si/GaP/GaAs HBT which combines the low cost of silicon production with the efficiency of a GaP/GaAs emitter, **National Scientific Corp** (Phoenix, AZ, USA) has succeded in its Continuation In Process application on the HBT US patent #6,171,920, covering the intellectual property required to manufacture the transistor.

National Scientific has also made three other CIP applications on other products.

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# Record power density for InP microwave amplifier

Under contract to the Air Force Research Laboratory (AFRL), Sensors Directorate, Wright-Patterson Air Force Base, Ohio (as part of the government's Dual Use Science and Technology program), **TRW Inc** (Redondo Beach, CA, USA) has developed a microwave InP power amplifier chip that delivers record power density for ICs operating at more 20 GHz (360 mW/mm$^2$ at 23 GHz) - at least twice that of any other power amplifier available while also providing "excellent linearity and power-added efficiency". "High performance microwave power amplifiers are a key requirement for next-generation digital radios and space-based communication systems," said vp for Advanced Semiconductors Dwight Streit.

The chip, with an output power of 400 mW. This paves the way for "advanced, power-efficient active apertures used in space-based and airborne radars," said Tim Kemerley, Chief of the AFRL Aerospace Components and Subsystems Technology Division, Sensors Directorate. "These aerospace radar systems will need highly efficient transmit amplifiers, as well as novel approaches to antenna packaging and integration, to meet requirements for multi-function performance, low mass and affordable cost."

TRW is also working to bring InP to specific commercial telecoms markets in the coming year at its high-volume 4" line, completed late last year. Low-volume pilot production is scheduled for early 2001. TRW Space & Electronics Group is building the Astrolink digital-switching payloads.

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# Kopin begins sampling InGaP/InGaAsN HBTs

Kopin Corp (Taunton, MA, USA) has begun to sample HBTs made from InGaP/InGaAsN structures (incorporating indium and nitrogen into the base layers) in its high-volume MOCVD production systems.

"We have achieved substantial reductions in turn-on voltage of more than 150 mV...while retaining excellent device characteristics", says president and CEO Dr John C C Fan. This should enable "significant improvements in GaAs-based HBT power amplifiers for advanced wireless handsets by lowering the operating voltage, increasing the efficiency and reducing power consumption."

The reduction in turn-on voltage enabled by InGaAsN base layers should permit better management of the voltage budget for the design of both wired and wireless GaAs-based RF circuits. Additional benefits include stable temperature characteristics, enhanced RF circuit performance, and improved device reliability," stated Director of Transistor Technology Dr Roger E Welser.

"Reducing the emitter/base turn-on voltage is a key requirement for maintaining the performance advantage of GaAs-based HBTs in next-generation electronic components," says Dr M Frank Chang, professor of electrical engineering at the University of California, Los Angeles and director of the High Speed Electronics Laboratory. Further development will "open new avenues for GaAs-based RF circuit design that would fit well with lower supply voltages in wireless handsets."

* Kopin's sales were US$24.6m for Q4/2000 (up 81% on Q4/99: III-Vs up 64% to US$18.2m) and US$92.6m for 2000 (up 139% on '99: III-Vs up 129% to US$72.0m).

However, due to "*excess inventories and forecast revisions by handset OEMs*", Kopin expects Q1/2001 sales down to US$12-14m.

Growth for second-half 2001 should be in line with first-half 2000, aided by new III-V products capitalising on "*emerging trends in the fibre-optic industry*" and "*the eventual rebound in wireless handset manufacturing*".

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