

First packaged prototype of single-chip 10 mW widely tunable C-band laser

Based on rigorous alpha testing at its fab in Santa Barbara, CA, USA, at March's *Optical Fiber Communications* conference Agility Communications gave the results of the first packaged prototype of a truly monolithic, single-chip, high-power, 10 mW widely-tunable laser.

Agility is the only optical provider to deliver high power over such a wide tuning range from a single semiconductor chip, reducing manufacturing costs "Everyone wants higher power, the ability to integrate high-speed modulators, and lower cost", says co-founder Larry Coldren.

Demonstration of 10 mW power across the full C-band confirms ability for the long-haul market.

QWIP camera enters Space Technology Hall of Fame

The Quantum Well Infrared Photodetector (QWIP) camera is one of three technology systems inducted for 2001 into the *Space Technology Hall of Fame* (established in 1988 through a joint venture of the Space Foundation and NASA to honor innovators who have transformed technology developed for space use into commercial projects) at the *National Space Symposium* in Colorado Springs, CO, USA in April (joining only 27 previous technologies).

QWIP was developed by a consortium that included Lucent's Bell Labs; NASA Goddard Space Flight Center; NASA Jet Propulsion Lab; Omnicorder Technologies, and Rainbow Group of Companies Inc's

QWIP Technologies of Pasadena, CA, USA (QWIPTECH) to produce the first operational long-wavelength infrared portable camera (for observing the plume created by the shuttle when it is launched).

QWIP technology has flown in space but, since it can reach wavelengths that existing technology cannot, it also enables new applications such as breast cancer detection, search and rescue, fire fighting (in the Malibu fires in 1996, and served as an early warning system on hot spots, not visible to the naked eye from the air), and collision avoidance systems. Recently, a QWIP was tested by surgeons at the Texas Heart Institute to see which arteries were carrying blood."

Uncooled 980 nm pump laser

Stockholm-based opto start-up Comlase is developing a 980 nm laser which requires no cooling. This makes it both less expensive and easier to build into the fibre-optic network.

Comlase is headed by Carsten Lindström (from Geotronics) and Peter Blixt (from Ericsson Microelectronics). It is the first Swedish company to develop its own pump laser.

The company plans to invest SEK300-400m in a laser production plant, to be operational next year. Due to a new production process, it expects to achieve a power output which is greater than for existing pump lasers.

The world market for 980 nm pump lasers is expected to reach SEK27bn in 2004. Comlase is hoping to corner 10-20% of this market by 2005 or 2006.

Sensors launches 1st near-IR MiniCamera; develops 10 Gb/s InGaAs PIN receiver

InGaAs device developer Sensors Unlimited Inc (Princeton, NJ, USA) has developed the 10 Gb/s SU-10PSR PIN receiver, which is hermetically packaged for long-term reliability, integrates an InGaAs pin diode with a GaAs HBT preamplifier and complies with the standard requirements of OC-192/STM-64 SONET/SDH, high-bandwidth DWDM, transponders and long-haul/metro system applications. John Lively (director, Optical Components at RHK Inc) estimates the market for 10 Gb/s receivers for DWDM and SONET/SDH applications will grow from US\$500m in 2001 to over US\$1bn by 2004.

The optical receiver features low ripple, low group delay, high PIN responsivity and high sensitivity, which reduce the need for optical amplification, as well as an SMA electrical output connector, low dark current, low capacitance, high overload, and wide bandwidth.

Sensors Unlimited has a class 1,000/100 cleanroom for complete device processing and testing of detectors and lasers, including photolithography, dielectric deposition, thermal and e-beam metal deposition, p-contact diffusion and annealing, chip dicing and automatic probing. Test facilities include infrared detector testing and

automated laser diode characterisation in wavelength range 0.65-5 μm .

* Also, Sensors Unlimited has launched the MiniCamera, a high-resolution, room-temperature InGaAs near-infrared (NIR, 900-1700 nm) video camera, for telecoms and DWDM applications such as laser beam profiling, fibre-optic component inspection, assembly and monitoring of optical switches and add-drop multiplexers, free-space communications and semiconductor inspection. A 320x240 imager allows small size (5x6x9.5cm) and low weight (under 350 g without the lens).

"The MiniCamera's compact profile makes NIR imaging possible even in systems where space and weight are an issue [e.g. on microscopes and laser alignment stations]", says president Greg Olsen.

Operating in the C-, L- and S-bands, the MiniCamera is exceptionally sensitive to light. "There is no problem with saturation, nor of damaging the imager with too much light," notes Imaging Product Manager and Research Scientist Martin Ettenberg. "It is very sensitive to short-wave infrared (SWIR) light, enabling users to image objects with very little light...no special lenses are needed."