

Sound and Sight

Animals, we humans included, do not need to be wired to communicate with each other by sight and sound. Up to now, most of our telecommunications had to be wired. Cellular is rapidly changing that.

While we have achieved huge bit rates over fiber optics, the development of air interfaces (wire and optical fiber free) have been a lot slower. But the end user would rather have an air interface than be obliged to sit in front of a desktop computer firmly attached by wires to the Telecom. It seems that a principal obstacle in cellular (CDMA) communications is the linearity of the RF amplifiers. RF Microdevices is solving the problem with gallium arsenide (GaAs). From my recent research into the subject it seems that silicon carbide (SiC) does an order of magnitude better job of it. Cree (CREE) is the leader in SiC production and they purchased UltraRF from Spectrian (SPCT) to pursue this line of business.

This bodes well for the Telecom because the current scarcity is connectivity which Simon Cao is trying to solve with very high lambda counts. But no matter how high the lambda count, you still need to be fixed in place to use a fiber optic based lambda. High bit rate cellular would solve both problems and, it seems to me, that the next big step forward will be driven by SiC based RF amplifiers.

There has been a lot of disruption in this field in the last few years. Who will be disrupted next? RFMD?

The RF amplifier saga

The GTR has been talking about RF amplifier companies for a long time:

GTR - May 1998:

Spectrian and MPD

As mobile devices proliferate at ever higher bit rates, the key constraint in digital cellular base stations are power amplifiers that maintain linearity—that can avoid smudging the bits while amplifying them to be sent out into the cell or transferred to the wireline network. Only two companies, Spectrian (SPCT) in Silicon Valley and MPD (MPDI) on Long Island can make power amplifiers

sufficiently stable for the broadband smart radios of the next generation of digital cellular data.

GTR - June 1998:

SPECTRIAN (SPCT) just received a 1998 Key Supplier Appreciation Award from Qualcomm, as a nearly unique producer of RF power amplifiers sufficiently linear for new generations of CDMA. Microwave Power Devices (MPDI) is another.

GTR - August 1998:

Spectrian

All National's SiGe single-chip heroics, however, could not enable it to integrate the power amplifiers that must accurately transmit the signal from base stations into a cell. Ultra-linear power amplifiers are the crucial gating element in ascendant broadband wireless uses. Teligent (TGNT), Winstar (WCII), and ART (ARTT) are aggressively pushing microwave broadband in the small business market. And, with both the US and Europe now converging on wideband CDMA for the next generation of wireless, the spotlight moves to the ascendant producers of microwave linear power amplifiers, chiefly Spectrian (SPCT) of Sunnyvale, California.

GTR - April 1999:

Conexant

Among the prime winners in the new CDMA era will be producers of the specialized and exacting components that make the system possible. We used to think that Spectrian (SPCT), the manufacturer of ingenious low-noise power amplifiers, would be a leader. But barging past Spectrian in the marketplace and ousting it from the Telecom list this issue is Conexant (CNXT).

The Motley Fool - November 22, 2000:

[Cree Steps Into Wireless Infrastructure Market](#)

Spectrian PR - Jan. 2, 2001:

[Spectrian Announces Sale of Its UltraRF Division to Cree Inc.](#)

Cree:

[UltraRF home page](#)

[Cree home page](#)

[Cree RF power transistors](#)

Denny

"Demand creates queues. **Supply gets rid of them.**"

[Software Times](#)