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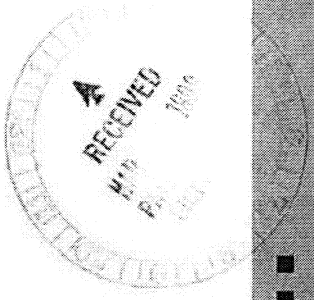

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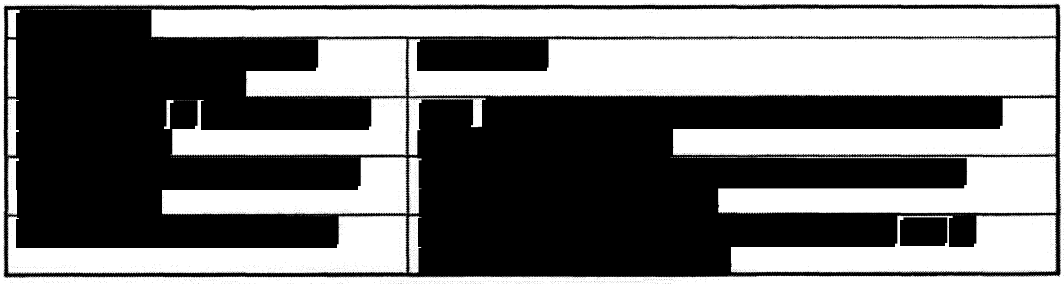

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Hard Disk Drives

11/21/98 - STM redefines itself in drive ICs

Nov. 20, 1998 (Electronic Engineering Times - CMP via COMTEX) -- San Jose, Calif. - STMicrolectronics is using a 425-Mbit/second **read channel** to reintroduce itself as a supplier of diskdrive ICs. Though made in BiCMOS, STM"s Bellini **read channel** will be cost-effective in the hotly competitive disk-drive IC market, the company said.

As a leading supplier of head-positioning servos and motor drivers, STM has long held a position in hard drives. But **read channels** have been absent from its offerings. "We missed a generation," said Michael Yousef, director of the data-storage business unit, here. "Now we"re back."

STM aims to position itself against Texas Instruments Inc. and Lucent Technologies in disk-drive ICs. Dataquest Inc. (San Jose) said STMicroelectronics was the world"s largest supplier of analog and mixed-signal devices in 1996. The title passed to TI in 1997, when STM fell to No. 2, with close to $2 billion in mixed-signal IC shipments. A revitalized position in disk-drive ICs could help STM reclaim the title.

But this market is not easy. With product life cycles collapsing from 18 months to 15 months and, soon, to a year, drive makers want high-performance, highly integrated parts that can be cost-reduced and made in volume. The manufacturing economies demand sophisticated fabrication processes, yet the short product cycles require a nimbleness, too.

The business structure of STM will encourage responsiveness, said Yousef, since the local unit in San Jose will be able to make many business decisions. The company"s manufacturing clout will also be key, he said. Read-channel suppliers without fabrication facilities are relegated to second-tier status, Yousef said.

Price pressure has been eroding the price of multi-gigabyte hard drives. The IC content accounted for about a third of the cost of a $120 drive in 1992. The disk-drive "kit," which consists of four major ICs plus buffer memory, now sells for $22 to $25. Components include **read channel**/data formatter; head positioner and motor-control servo; microcontroller; and SCSI or IDE host interface. Driven by the sub-$1, 000 PC, Yousef expects kit pricing to drop to $15 to $20 by the end of 1999.

That means the **read channel**, a $9 part in the early "90s, will have to come in for about $3.

Bucks the trend

STM"s use of 0.35-micron BiCMOS flies in the face of competing CMOS approaches from Lucent, Marvell Semiconductor and Cirrus Logic. Even TI, long a BiCMOS advocate, indicated at Diskcon in September that it would back away from BiCMOS for read-channel ICs.

Paolo Cocchiglia, design manager for STM, said traditional CMOS has a problem with noise that bipolar amps can overcome. BiCMOS makes for an "easier channel implementation," he said. While CMOS aids "superintegration" and responds to lower voltage requirements, many analog signal-conditioning circuits can"t be easily rendered in CMOS, he said.

Future read-channel architecture schemes may effectively segregate analog and digital circuits, Cocchiglia said. The analog portions-essentially the read-head signal amplifier-can be integrated with the device"s preamp and reside with flex circuitry on the read-head armature. It would likely be a 0.7-V bipolar part,

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