works at about twice the speed of a VAX-11/780 when running compiled code, says Furber, referring to a raft of benchmark tests. For example, a set of Basic benchmark programs provided by the British magazine *Personal Computer World* takes Acorn's two-processor system just 0.7 s to complete. Running the same programs, the IBM Personal Computer took 17.6 s, the PC AT finished in 7.11 s, Apple Computer Inc.'s Macintosh took 12.15 s, and Acorn's unaided Model B was done in 14.5 s.

COMPILED SPEED. Another set of benchmarks developed by Martin Richards of Cambridge University to test compiler efficiency put the ARM processor at roughly four times the speed of a VAX-11/750 or a National 32016. Running Lisp programs, Acorn says its two-processor system is as fast as the Symbolics Inc. 3670 work station.

Acorn designed the ARM chip to support high-level languages and real-time

applications in personal computers. The company expects interest from academic, government, and industrial research establishments that need high-performance engines, particularly in real-time, artificial-intelligence, or high-level-language applications. The processors required by Britain's Alvey fifth-generation-computer project, for example, represent a possible use for the chip.

The chip is about twice as fast as a VAX-11/780

The ARM chip will also form the basis for a new family of Acorn products, but at present the company will not say what those might be. Instead it wants to exploit its lead by collaborating with other companies on developing products. Now that Acorn is a subsidiary of the

Italian office-equipment supplier Ing. C. Olivetti & C. SpA, it may not have to look too far for a first customer.

AT&T Co., which has established a connection with Olivetti, could well take an interest in the Acorn processor. And chip maker VLSI Technology could be interested in packaging the microprocessor for separate sale. Acorn has no intention of reentering the U.S. market on its own.

Several other companies are running on the same track as Acorn. Commercial RISC machines built with standard chips have already surfaced [*Electronics*, July 15, 1985, p. 54]. And Inmos's transputer is a chip-level RISC processor that executes the instructions of the Occam high-level language devised for concurrent programming. It is also possible that the research groups that started the RISC bandwagon rolling might in time find a way to bring one or more of their designs to market. –*Kevin Smith*

BUSINESS

SOME OBSERVERS SEE END OF IC SLIDE

PALO ALTO

Semiconductor makers are giving their already tight belts another hard tug in anticipation of third-quarter billings that will reflect nearly a year of depressed bookings. "There will be a bloodbath of red ink," says one marketing executive with resignation. But some industry analysts see the first hints that the semiconductor slide might finally have hit bottom.

Most optimistic of all is Adam Cuhney, vice president of research at investment banking company Kidder, Peabody & Co., New York. Cuhney says his econometric model of the semiconductor industry predicts an upturn beginning in the fourth quarter of this year, based on reduced inventories for equipment makers and a small increase in the gross national product.

Support for this view comes from Charles M. Clough, president of the Wyle Laboratories Electronic Marketing Group, an Irvine, Calif., distributor. "We are seeing an important upswing in the third quarter," Clough maintains. Wyle's book-to-bill ratio stood at 1:1 for the second quarter, the first positive figure in a year, and should be up 10% to 15% in the third quarter, he adds.

After a year in the doldrums, bookings for custom and application-specific integrated circuits tripled in the second quarter at Silicon Systems Inc., Tustin, Calif. Based on that, "We believe we are seeing the start of a recovery," says president Carmine J. Santoro.

But even three swallows don't make a summer. Though some major semicon-

ductor makers report an end to cancellations and an upturn in bookings, no one is ready to start cheering. Two of the giants, Texas Instruments Inc. and National Semiconductor Corp., are downright gloomy.

TI sounded the deepest note of pessimism in reporting second-quarter losses of $3.9 million. The current recession is "possibly the worst in the history of the industry," according to the TI report. A company representative predicts that the chip business will probably worsen in the third quarter.

OPTIMIST. Adam Cuhney of Kidder, Peabody & Co. says falling equipment inventories and a rising GNP point to a fourth-quarter upturn.

National experienced a slight upturn in sales in May and June, says Keith Kolerus, the company's vice president of sales. "But we are now seeing a second wave of cutbacks, generated entirely by the computer industry. Their backlogs are down, their book-to-bill ratios are down, their inventories and finished systems are up. It's having a whole new wave of impact."

Yet some executives think the worst may be over. Larry Hootnick, marketing vice president at Intel Corp., reports seeing signs that "we are at the bottom, or close to it. We are starting to see some indications that bookings will pick up. For one thing, there is a lot more short-term business. Instead of putting in orders for 8 to 12 weeks in the future, customers are waiting until the last minute and asking for short-term delivery. Cancellations are down and the unit book-to-bill ratio is moving toward unity."

Even improved bookings won't help the situation much until next year, Hootnick adds. "There is a six-month lag time. The first quarter of 1986 may be decent, and by the second quarter we will be OK, but the next three to six months will be terrible."

STRONG DEFENSE. Peyton Cole, manager of strategic marketing at Fairchild Camera & Instrument Corp., says aerospace and defense business has kept Fairchild's book-to-bill ratio ahead of the industry average. The company expects the ratio to hit 1:1 by year end. But Cole adds, "We are by no means wildly optimistic. The second half will be very