

whip up its n-channel process by building three of SMC's standard products: the CRT5027 video timing and control chip, the COM5025 multiple-protocol universal synchronous receiver-transmitter, and the CRT8002 video-display-attributes controller.

It will also build floppy-disk and cassette-cartridge controller chips currently under development at SMC that the two firms hope to introduce jointly later this year. For its part, SMC can look at future n-channel products Solid State develops and expect to second-source as many as it gives SSS.

Where exactly Solid State will take n-MOS on its own is not yet clear. But Jay Litus, the firm's MOS marketing manager, alludes to one possibility: telecommunications. "We plan a definite entry into the telecom market, but we are waiting for the dust to settle," he says. "It's not clear which technology—n-, p-, or C-MOS—will be the best solution for those parts, but we'll feel a lot better having all three."

Since SSS already second-sources the 1800 family of C-MOS processors produced by RCA Corp. and Hughes Corp., will it pursue an n-channel microprocessor family? "It's a possibility," Litus says. □

## Consumer

### Bally computer uses plain language

Fearing that few people will actively want to program their home computers, the makers of these machines are turning to simpler software packages. But whereas many personal computers use some form of Basic, Bally Corp. is coming out with a custom language that uses words instead of letter-number combinations to make it seem friendlier.

Introduced at this month's Consumer Electronics Show in Las Vegas, the new language also has a more glamorous pedigree than most software, being an offshoot of the language used to create special

### 1979: better forecast for semiconductors

While many sectors in the electronics marketplace are expecting a slowdown this year, that's not the case for the semiconductor companies. Buoyed by the strongest fourth quarter in their history, U. S. semiconductor companies are entering 1979 booked solid through the first quarter and most of the second, according to Thomas D. Hinkelman, executive director of the Semiconductor Industry Association.

"We look forward to a good 1979 based on a very strong first half, with the possibility of the year's growth being better than the 9% we previously forecast [*Electronics*, Oct. 12, 1978, p. 88], if the market remains strong through the third and fourth quarters this year," he says. Hinkelman explains that the SIA's 9% figure was made last fall when it assumed a softening in the middle two quarters, but "we now are looking at a softening, if it occurs, beginning sometime in the second half."

Preliminary 1978 tabulations show that total worldwide semiconductor sales of U. S. companies were \$4.8 billion, up almost 25% over 1977. The total was paced by a \$1.325 billion fourth quarter, up 29% over the same period in 1977. The U. S. market grew 20.4% to about \$3.1 billion, and the international market by one third to \$1.7 billion. Hinkelman notes, for example, that the Japanese market for U. S. stand-alone companies—those not selling to their own subsidiaries—grew 40%, but much of that was due to the dollar's decline against the yen.

computer effects in the movie "Star Wars." Called Grafix, the self-teaching, user-expandable language is to be a major feature of Bally's Level III home computer when it hits the market during the third quarter. The firm previously introduced a Level I computer that operates with read-only memory cartridges containing video games.

**Creative.** Basic's mnemonics and typical programming-like syntax, such as HLIN for horizontal line and VLIN for vertical line, could confuse potential users. Instead, the Level III program allows users to create graphics by using words like "circle" and "box," according to Robert Wiles, general manager of the Franklin Park, Ill., company's Consumer Products division.

When a user is uncertain how to specify a figure, its position, or its color, he or she can type in "help," and the computer will begin a sequence of directives that show the proper method.

Users add new words to the Grafix vocabulary simply by programming graphics subroutines and then naming them. In this way, the language can be expanded to the limits of available memory. At present, the system contains 32 kilobytes of read-only memory and 20 kilobytes of

random-access memory, and provisions exist for adding memory accessories later, according to Wiles.

Grafix was developed by a team of programming engineers led by Tom DeFanti, professor of computer sciences at the University of Illinois, who created the software for "Star Wars." The language is loaded into Level III from a software cassette. Whereas Bally's Z80-based computer can interface to a black-and-white television set or monitor, it is best to attach it to a color set in order to make full use of its 256-color capability.

A Level III computer is built by adding the special programming keyboard and Grafix software to Bally's Level I video console. The \$300 video console is available now, and the \$650 keyboard and software cassettes will be ready during the summer, Wiles says. □

## Computers

### IBM introduces one-board computer

Although not unique in the marketplace, the new single-board Series/1 model 4952 computer unveiled ear-