Growth Cycle

The industrial electronics and electronic components industries are known to follow two well-established business cycles—the so-called IBM cycle and the silicon cycle. The former, based on replacement demand, is created by the shipment of new generations of mainframes—large, general-purpose computers. The silicon cycle, by contrast, is caused by the introduction of new IC chips with larger memories—most recently the replacement of 1M DRAM chips by 4M DRAM chips.

The electronics industry is set to enter an expansionary phase of these cycles in fiscal 1991. It would not be surprising if the output value of industrial electronic products and electronic components surged as much as 10% in the year. Yet a number of unfavorable developments, including a jump in oil prices caused by the Gulf crisis, are exerting a braking effect on the industry's domestic demand and investments. As a result, the electronics industry's production value in fiscal 1991 is expected to grow by some 7%.

The output of computer-related equipment in fiscal 1990 is likely to show a relatively low increase of 4% or 5% over the previous year. In fiscal 1991, however, that figure should rise to 8% or 9%.

Once major computer manufacturers begin shipment of new model mainframes, replacement demand is expected to generate some recovery of domestic demand. The likely recovery of demand for mainframes, which account for about half of the domestic computer market, is an encouraging factor in computer sales in fiscal 1991.

Shipments of personal computers, led by notebook-type and 32-bit machines, are also likely to show sustained growth in 1991. Shipments of the notebook type, in particular, are very brisk as a result of highly successful marketing of new models. Laptops, including the notebook type, accounted for more than 50% of domestic shipments in the first quarter of fiscal 1990.

Domestic shipments of personal computers are likely to post sustained high growth in the 1990s, as trends show increasing usage of computers by smaller businesses. Home use is also on the rise. A downsizing trend from large to smaller machines will accompany these shifts in use and demand throughout the 1990s.

The industry's exports, especially computer peripherals, are expected to post a gradual growth slowdown starting in the latter half of fiscal 1990, the primary reason being the slowing growth of the U.S. computer market.

The production value of communications equipment is expected to increase by about 9% in fiscal 1990 and around 5% in fiscal 1991. In wire communications equipment, the production of cordless phones, telephone switching systems and carrier equipment is in good shape. The production of facsimile machines, formerly a main product of the industry, is slowing down partly due to increasing production overseas. Among radio communications equipment, mobile communications equipment has shown solid growth. These favorable performances are expected to be sustained in fiscal 1991.

Photo: Nihon Keizai Shimbun

Laptops accounted over 50% of domestic shipments of computers in the first quarter of fiscal 1990.

The semiconductor business bottomed out in the present silicon cycle in the first quarter of fiscal 1990. As a result, memory IC prices have since remained relatively stable, and the inventory ratio has steadily dropped. However, as a result of an appreciable decline in the unit prices of memory ICs since last year, neither domestic nor overseas demand (measured in monetary value) can be expected to show major growth in fiscal 1990.

In fiscal 1991, the replacement of the old by the new memory IC generation is expected to get fully under way. The domestic output of the 4M DRAM, replacing the 1M DRAM, is projected to top the 2 million-chip level per month in the fourth quarter of fiscal 1990. The production of the 4M DRAM is expected to grow rapidly in subsequent quarters.

The 4M DRAM is already in use in notebook-type laptops and in some other small office-automation machines. As the supply of the 4M DRAM increases, the price of the chip will gradually decline. Eventually, the 4M DRAM will be used in new mainframes and workstations. The monthly output of the 4M DRAM is thus estimated to reach 10 million chips in fiscal 1991 and to reach the peak of the silicon cycle in fiscal 1992.

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Industrial Electronics Supply and Demand

(¥ billion)

	FY1990 (estimate)		FY1991 (forecast)	
Industrial electronic machinery				
Output	10,527	(4.2)	11,375	(8.1)
Exports	2,920	(8.1)	2,985	(2.2)
Imports	650	(11.2)	690	(6.2)
Domestic demand	8,257	(3.3)	9,080	(9.9)
Industrial electronic components				
Output	8,190	(5.5)	8,680	(6.0)
Exports	5,050	(8.7)	5,305	(5.0)
Imports	1,205	(19.6)	1,355	(12.4)
Domestic demand	4,345	(5.4)	4,730	(8.9)

Note: Figures in parentheses denote growth rate over the previous year.