

### **Development of Intelligent Transport Systems (ITS)**

Studies are being conducted around the world on development of sophisticated intelligent transport systems (ITS) that organize the road map into information networks that facilitate highly sophisticated management of traffic information. Clarion has recently entered into an agreement with Hitachi Ltd. to develop hardware components for car navigation systems. Hitachi already possesses expertise in the area of electronic toll collection systems (ETC) and vehicle information and communications systems (VICS), which transmit information on current traffic congestion conditions and other topics to cars traveling on the road. Development is already underway on terminals for ETC systems.

### **Clarion AutoPC sales**

Since the AutoPC was launched as an aftermarket product in the U.S. in January 1999, sales have grown in the region of 5000 units. Based on the Windows CE (Microsoft Corp.) operating system, the AutoPC serves as a car audio system, a computer and a navigation system, with the added feature of wireless transmission. Clarion will be launching sales of the second-generation AutoPC this year.

Clarion's efforts to promote the AutoPC as an OEM product have borne fruit, with sales to Citroen of France (for the Xsara) commencing in January 2000.

Clarion will be launching the product in other markets in Europe, as well as in Japan and Asia, as the necessary software is developed. The AutoPC is expected to come into increasing use as a terminal for ITS systems.

### **New Product Development**

In the car audio field, the shift toward digital as seen in CD and MD car audio systems has now become a veritable sea change. During the fiscal year, Clarion announced 12 new models in the ADDZEST series of aftermarket products that include audio center units and compact car television systems. The main products in this series are 2DIN class

audio center units featuring AM/FM tuner and both CD and MD format players.

Paralleling the trend in popularity of car audio systems in recent years is the growing demand for car navigation systems. With strong sales of the CD-ROM based ADDZEST S-Navi, Clarion has succeeded in climbing to the top ranks in terms of market share. The DVD-ROM based navigation system, with its large volume information capacity, has been selling well since its debut last summer.

Clarion now supplies car navigation systems on an OEM basis to the domestic automobile manufacturers, while orders from overseas manufacturers are also increasing.

On April 1, 2000, Clarion spun off the Precision Device (PD) Business Division, responsible for developing, manufacturing and marketing the drive components used in car audio and car navigation systems, as wholly owned subsidiary, Clarion Device Co., Ltd. This move is part of a drive to establish a more competitive presence in both domestic and overseas OEM auto manufacturing markets.

Clarion contributes to safer driving with a safe driving system based on a miniature, high sensitivity CCD camera. The system enables drivers to monitor images of blind spots to the rear and the clearances on either side of the vehicle at intersections with poor visibility.

### **SS Modem Holds Promise for Wireless Networks of the Future**

The SS transmission technology Clarion has developed over the years is highly resistant to noise and offers very reliable performance in SS wireless modem applications for both the office and factory. In addition to the main area of car audio and navigation systems, Clarion intends to establish a strong presence in the SS transmission and ITS markets.

### **Developing Global Markets**

Clarion's fundamental approach to the car audio business is to conduct product development and manufacturing,

parts procurement and sales within those regions with high demand for Clarion products. In line with this policy, Clarion is currently building a system of regional headquarters that divides the world into 4 areas, one of which is Japan. Bases for designing and developing products are also located in each region to ensure systems meet the specific requirements of local markets.

### ***North America***

The big three automobile manufacturers in the U.S. OEM market have adopted QS-9000 as the product quality standard set for parts procured from component suppliers. Meeting these standards is an essential condition for doing business with the big three. Within the Clarion group, Clarion Device Co., Ltd., the OEM Business Division and factories in Mexico and China have already obtained the necessary certification. In May 2000, Clarion do Brazil Ltda. was established as a wholly owned subsidiary of Clarion Corporation of America to produce and sell integrated CD and radio systems in Brazil.

The aftermarket in North America is characterized by severe competition, with Clarion and other Japanese brands accounting for an 80% share. Clarion is seeking to expand its market share with intensive efforts to produce low-priced, high-quality products featuring enhanced functionality.

Clarion has also recently entered into contracts with Sirius Satellite Radio (New York) and XM Satellite Radio (Washington) to design and develop car radio systems for receiving digital satellite broadcasts in the American market. Clarion intends to develop, manufacture and market the satellite radio systems on both an OEM and aftermarket basis to manufacturers of complete automobiles.

### ***Europe***

Clarion established Clarion Hungary Elektronikai Kft. in Nagykata, Hungary, as its production base for car audio systems and components for group companies in the

European market. The new factory commenced production in January 1999 and is progressing steadily toward its production target of one million units per year, which is expected to increase Clarion's share of the EU OEM market.

Populated by both local and Japanese manufacturers, the aftermarket in Europe is also a highly competitive one. In addition to its position in the hotly contested car audio market, Clarion is a strong player in car navigation systems and car television systems and has been successful in increasing sales. Clarion launched sales of car navigation systems based on the maps and languages for six different countries, beginning with Italy in April and continuing with France and Belgium in September. These have proved very popular. Germany is at the forefront in development of traffic information systems. Clarion plans to intensify product development and sales efforts to establish a strong base in preparation for when the ECU-wide traffic information systems come on line.

### ***Asia***

In China, Xiamen Clarion Electrical Enterprise Co. Ltd. (CXEE), which commenced production in December 1998. Dongguan Clarion Orient Electronics Co. Ltd. (DCOE) succeeded in obtaining QS-9000 certification required by the big three automobile manufacturers in the U.S. DCOE has already been certified for the international ISO9002 standards.

In Malaysia, Clarion (Malaysia) Sdn., Bhd. handles OEM sales of Clarion products to Malaysia's national automobile manufacturer. The Philippine plant is currently the main production base for the company's OEM products.

After the temporary setback caused by the economic crisis, the Asian aftermarket is on the road to recovery. Clarion has succeeded in increasing sales here by offering a full line of car audio, car navigation and car television systems.