

## R&D Initiatives

The Mitsubishi Electric Group's R&D network comprises the Advanced Technology R&D Center, Information Technology R&D Center and Industrial Design Center in Japan, and laboratories in the United States and Europe. These centers operate under the umbrella of the Corporate Research and Development Group, working in collaboration with the development departments in individual business groups. Collectively, this network serves as a springboard for the development of the new and innovative products and technologies that form the foundations for future businesses.

Guided by its VI Strategy, the Mitsubishi Electric Group engages in R&D that bolsters its competitive standing while making already strong businesses such as elevators and escalators, industrial automation equipment, automotive electric and electronic components and other businesses even stronger. Efforts to enhance the Group's technological capabilities are directed toward increased differentiation and greater global competitiveness. Also, with the aim of reinforcing strong businesses, we are further developing solutions in line with our AD Strategy. In addition to creating new solutions, we are fusing together a wide range of technologies as we seek breakthroughs across diverse fields, including environmental protection, energy conservation and total security provision.

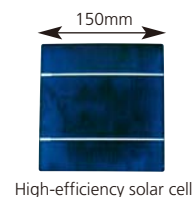
To support global development across a wide variety of businesses, we are pressing ahead to acquire intellectual property rights and standardize developed technologies in accordance with our business and development strategies. At the same time, we are pursuing active collaboration with industry, academia and government concerns through joint research with leading Japanese and international institutions and national projects in Japan.

With regard to the environment, Mitsubishi Electric formulated Environmental Vision 2021 in October 2007. Consistent with this vision, the Group will aggressively address technological challenges related to the global environment and energy conservation through R&D work that helps realize a sustainable society.

## R&D Achievements in Fiscal 2008

### High Conversion Efficiency Solar Power Generation System

Mitsubishi Electric has developed a multi-crystalline silicon solar cell that boasts the world's highest<sup>1</sup> photoelectric conversion efficiency rate<sup>2</sup> of 18.6%. Combining the cell and a Mitsubishi Electric power conditioner that achieves a power conversion efficiency of 97.5% delivers a solar power generation system with significantly improved electrical output.



High-efficiency solar cell



Power conditioner  
(Power conversion efficiency of 97.5%)

### SiC Power Device

Mitsubishi Electric has developed a power module configured using power devices based on SiC<sup>3</sup> to realize a next-generation high-voltage power semiconductor that significantly cuts power loss. This new power module reduces power loss by approximately 50% when compared with power modules configured with Si power devices (IGBT<sup>4</sup>).



### DIGUARD NET Security System Integration Platform

Mitsubishi Electric has developed DIGUARD NET<sup>5</sup>, a security system integration platform that enables the integration of access control and video surveillance systems along with remote monitoring, operational management, and building facility control. In addition to centralized communication, this integration also facilitates effective information sharing among several systems.



1. The rate achieved on a 150-millimeter square practical-use multi-crystalline silicon solar cell as of March 19, 2008, based on Mitsubishi Electric internal research.
2. Efficiency of conversion of solar light energy to direct current electrical energy.
3. SiC: Silicon Carbide, a compound of silicon and carbon.
4. IGBT: Insulated Gate Bipolar Transistor, a power semiconductor device for industrial machinery and equipment.
5. DIGUARD NET: Distributed Information Gathering and Unifying Architecture for Rapid Deployment NET, a software package used for the effective integration of multiple systems.