Preface
Special Issue on Technical Computing

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It's been five years since our last special issue on technical computing solutions. In the interim, the K computer, jointly developed by RIKEN and Fujitsu in 2011, became the world's fastest supercomputer and made supercomputers a popular topic of conversation. Since then, a new term, "technical computing," has been gradually becoming familiar to many people.

Since building Japan's first supercomputer, the F230-75 APU, in 1977, Fujitsu has been a global leader in the development of advanced computers for scientific and technical computing. In 1993, Fujitsu jointly developed the Numerical Wind Tunnel system with the National Aerospace Laboratory of Japan (now the Japan Aerospace Exploration Agency, JAXA). This system was the first Japanese-built supercomputer to be the highest ranked supercomputer in the world. The K computer, therefore, is Fujitsu's second supercomputer to achieve the top spot.

Along with advanced supercomputers, Fujitsu has also been providing a variety of technical computing solutions spanning the fields of space, astronomy, meteorology, aviation, nuclear power, and computer-aided engineering. Since Fujitsu first began building the technical computing system for the Himawari geostationary meteorological satellite of the Japan Meteorological Agency in 1977, we have continuously led in the development of diverse mission-critical systems in the meteorological area such as the Automated Data Editing and Switching System (ADESS) and the Automated Meteorological Data Acquisition System (AMeDAS), which has become emblematic of weather forecasting in Japan. Since the Great East Japan Earthquake of 2011, the need has been growing for dealing effectively with abnormal phenomena, from earthquakes and tsunamis to torrential downpours and tornados. The development of sophisticated technologies for helping to prevent and mitigate natural disasters has been eagerly awaited. Fujitsu fully intends to contribute towards meeting this need.

Likewise, Fujitsu has been working closely with our industrial customers since the dawn of the computer age to advance the use of information and communications technology (ICT) in the product research and development process. Simulation technology and other forms of innovative ICT have become essential tools for product development, and product competitiveness

now depends on these tools. Fujitsu has been participating in a national project in Wales, United Kingdom, to enhance the industrial infrastructure through the development of simulation skills. The number of scientific and technical computing projects in such diverse fields as supercomputing, weather forecasting, and environmental monitoring has been increasing worldwide, and Fujitsu has been receiving many inquiries about technical support, not just from developed countries but also from emerging nations in Asia and the Middle East. I am convinced that technical computing will experience global expansion and become increasingly important.

In this special issue, we introduce our readers to recent research achievements of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) in natural disaster mitigation and prevention obtained using the K computer. We also present a variety of case studies in technical computing solutions provided by Fujitsu:

- Overseas social infrastructure systems contributing to meteorological services, emergency management, and environmental protection
- Overseas projects using advanced research and simulation skills in astronomy, computational science, and other fields
- Domestic social systems and projects using advanced research and simulation skills

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) in Japan is now planning the development of Japan's next-generation supercomputing system, one with 100 times the performance of the K computer. Fujitsu is participating actively in this project not only to provide the latest supercomputing technologies, but also to create new values that will contribute to our everyday lives.

And now, on this very special occasion, I'd like to thank all of you for your outstanding support and deep interest in Fujitsu technical computing systems and solutions. I look forward to your continued guidance and collaboration.