



6 Semiconductor/information and communication industries

<Main future efforts>

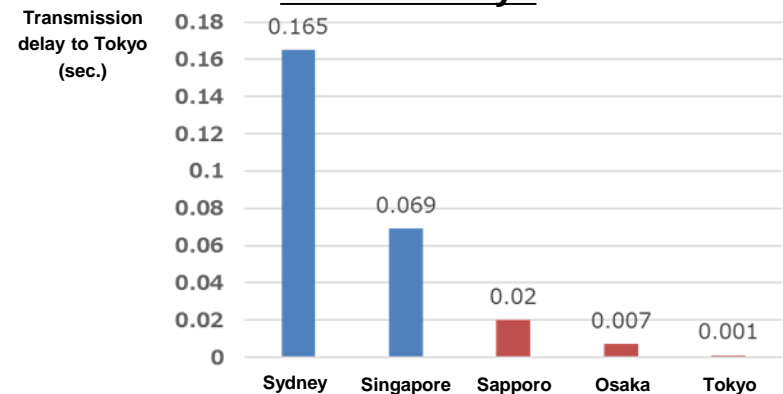
- Aiming to achieve carbon neutrality in the semiconductor/information and communication industries by 2040 by supporting research and development of next-generation power semiconductors and green data centers.
 - (1) Next-generation power semiconductors
Research and development of next-generation power semiconductors such as GaN and SiC in addition to conventional Si
 - (2) Green data centers
Energy conservation in data centers through the development of optical electronics and other technologies.
 - (3) Edge computing
Development of data processing technology for sensors at the edge of the network and energy conservation of information and communication infrastructure

Benefits to people's lives in 2050

- The establishment of green data centers in Japan will enable new digital services such as automated driving, remote surgery, AR, and VR.
 - The establishment of data centers in Japan will enable remote, non-face-to-face, and non-contact services by ensuring a sufficient level of data transmission speed.
- Electricity rates for home appliances will be reduced through the practical application of next-generation power semiconductors etc.
 - If the next-generation power semiconductors are installed in all home appliances, the energy-saving effect will be equivalent to about 7,700 yen per year per household.

- Promoting the establishment and optimal allocation of data centers in Japan (development of new regional bases, creation of an Asian hub).
 - Considering and quickly implementing a policy package, including the formulation of a location plan, that will lead to the establishment and attraction of data centers in Japan and their optimal allocation.
 - * The Action Plan of the Growth Strategy states that the government will promote the development of up to five new core hubs, and up to ten regional hubs depending on the demand.

Average transmission delay (latency) from various cities to Tokyo



- Tokyo-Sydney **approx. 0.2 sec.**
- Tokyo-Singapore **approx. 0.1 sec.**
- Tokyo-Tokyo **almost 0 sec.**

For precision and high quality service, a fraction of a second is critical.