What is Data Bandwidth?

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- **Data bandwidth is amount of data transferred per second.**
  Unit is [Byte/s]. (*1)

Data Bandwidth Calculation

Data Bandwidth = **Data transfer rate per I/O** x **Number of I/O**

= **Clock Frequency** x **Data per Clock rate** (*2) x **Number of I/O**

Notes: *1: [Byte] = [bit] / 8.

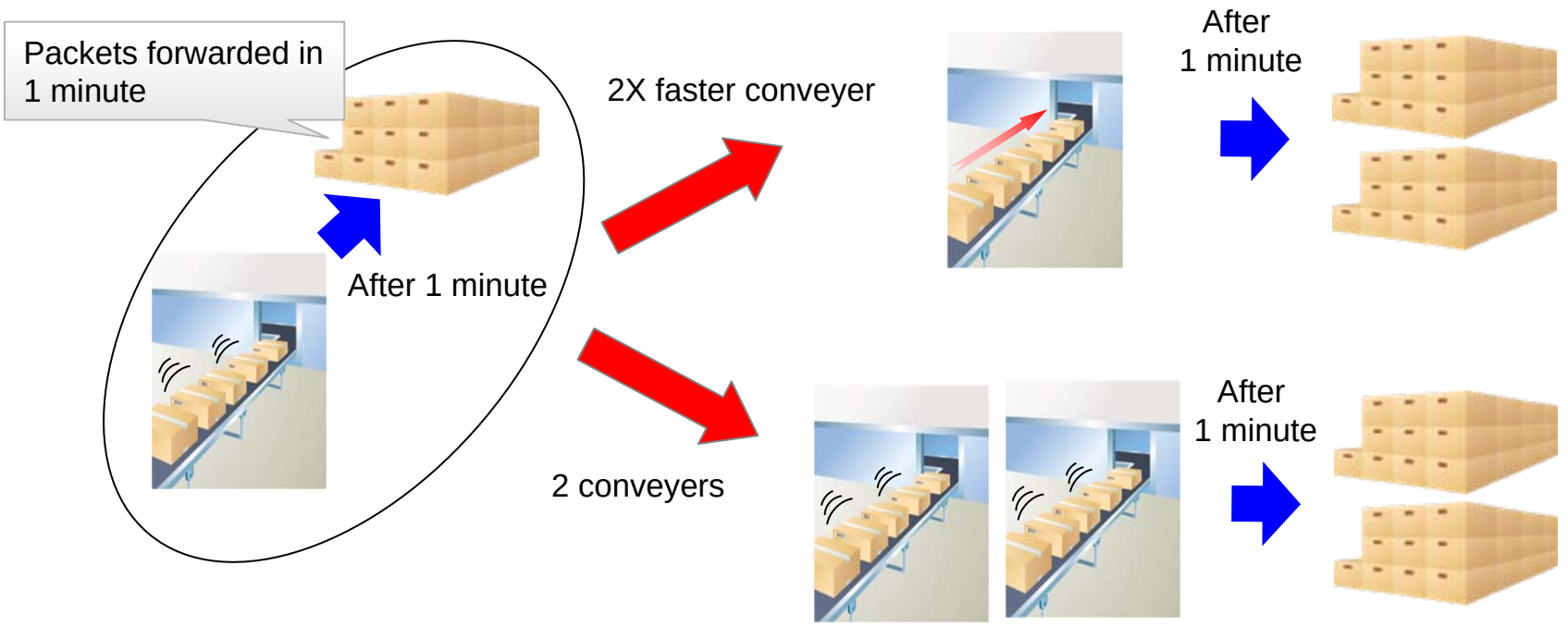
*2: Data per Clock rate is 1 for SDR (Single Data Rate), 2 for DDR (Double Data Rate)

● For more information about FCRAM with wide data bandwidth, please **CLICK** here!

How to increase Data Bandwidth?

- **How to increase Data Bandwidth?**
  - To increase clock frequency or to increase data bus

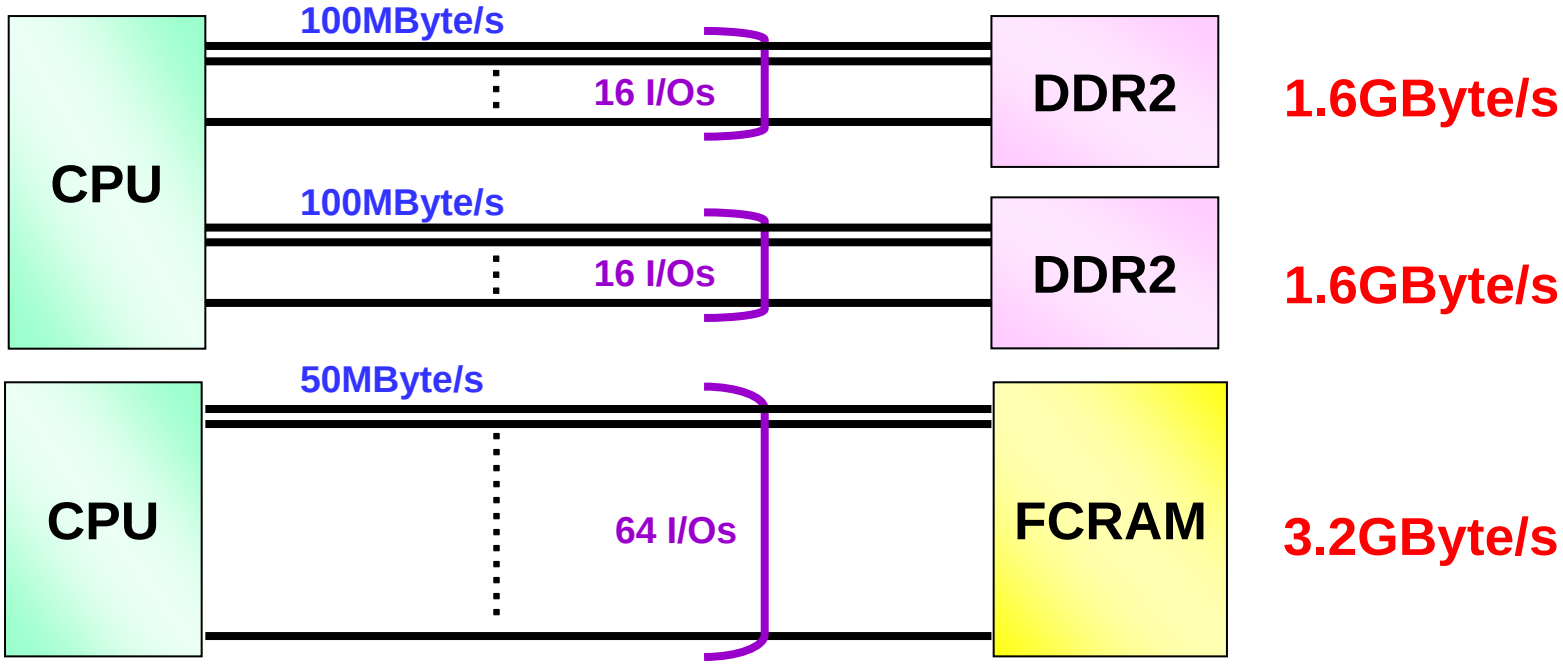
- **Example**
  - Assuming data are packet and data bus width is a number of belt-conveyers. Amount of packets forwarded in a period (e.g., 1 minute) means data bandwidth.
  - Increasing speed of a belt conveyer or increasing a number of belt conveyer increases amount of of packets forwarded in 1 minute.



Example of Data Bandwidth Calculation

- **DDR2 - Maximum 1.6GByte/s data bandwidth**
  - Number of I/O: 16bit
  - Data Transfer Rate per I/O: 800Mbps = 100MByte/s
  - Data Bandwidth = 100MByte/s x 16bit = 1600MByte/s = 1.6GByte/s

- **FCRAM - Maximum 3.2GByte/s data bandwidth**
  - Number of I/O: 64bit
  - Data Transfer Rate per I/O: 400Mbps = 50MByte/s
  - Data Bandwidth = 50Mbps x 64bit = 3200MByte/s = 3.2GByte/s



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