

## **TECHNICAL BULLETIN**

**[Issue No.]** FA-A-0137

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**[Title]** Considerations when using PCI-compatible CC-Link IE Controller Network interface board

**[Date of Issue]** July 2012

**[Relevant Models]** PCI-compatible CC-Link IE Controller Network interface board  
Q80BD-J71GP21-SX, Q80BD-J71GP21S-SX

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Thank you for your continued patronage of Mitsubishi general-purpose PC interface boards.

This bulletin describes the considerations when using the CC-Link IE Controller Network interface boards compatible with PCI.

### **1. Considerations**

The following symptoms may occur on a personal computer on which a PCI-compatible CC-Link IE Controller Network interface board (hereinafter referred to as "the PRODUCT") is installed.

- Slow system performance
- Unstable application performance
- Incorrect link-refresh interval despite the settings
- Occurrence of WDT error (watchdog timer error)

When any of above-mentioned symptoms occurs, refer to the following and take corrective action.

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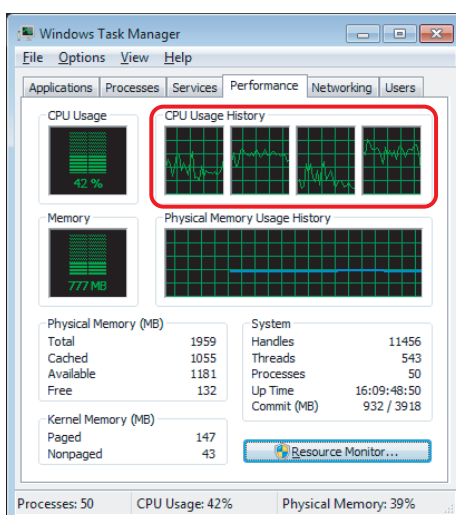
## 2. Possible causes

"CPU usage<sup>\*1</sup>" of the personal computer may be high because of the following causes.

| No. | Cause  | Description  |
|-----|--|--|
| 1   | An application which requires high CPU usage is performing.                                  | When an application which requires high CPU usage performs frequently, an interval of event occurrence by event function is short, or the like.  |
| 2   | A device which occupies the CPU of the personal computer is used.                            | The CPU of the personal computer is occupied by the processing of device that is other than the PRODUCT and is used on the personal computer.  |
| 3   | A large number of refreshes is set to the PRODUCT, or the interval of link-refresh is short. | <ul style="list-style-type: none"> <li>The duration of the PRODUCT's link-refresh processing that occupies the CPU of personal computer is long.</li> <li>The duration of link-refresh processing that occupies the CPU of personal computer is long because 2 or more PC interface boards are installed.</li> </ul> |
| 4   | The set interval of WDT is short.  | The set interval of WDT is short compared to the CPU usage.  |
| 5   | A PCI Express <sup>®</sup> to PCI Bus translation bridge is used on the personal computer.   | <p>When a PCI Express<sup>®</sup> to PCI Bus translation bridge is used for a PCI bus slot to which "the PRODUCT" is installed, the CPU usage will be high.</p> <p>For PCI bus slot and PCI Express<sup>®</sup> to PCI Bus translation bridge, contact the manufacturer of personal computer.</p>                    |

\*1: CPU usage

Check the CPU usage with "CPU Usage History" on the <<Performance>> tab of "Windows Task Manager" that is Windows standard function. High CPU usage indicates the status of 50% or more CPU usage in any of the cores on "CPU Usage History" in the <<Performance>> tab of "Windows Task Manager" despite performing any applications.



Note:

Task Manager and Performance Monitor may report CPU usage that is higher compared to the actual computer activities. For details, refer to the following Microsoft website.

"Performance Monitor Reports Inconsistent Data About CPU Usage"

<<http://support.microsoft.com/?scid=kb%3Ben-us%3B810876&x=15&y=15>>

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### 3. Corrective action

Check the causes in the following table in ascending order, and take corrective action.

| No. | Cause  | Corrective action  |
|-----|--|--|
| 1   | An application which requires high CPU usage is performing.                                  | 1) Start "Windows Task Manager", and check the CPU usage on the <<Processes>> and the <<Performance>> tab.<br>2) Deactivate all the running applications. When the CPU usage is high despite running no applications, go to corrective action number 2.<br>3) When the applications whose CPU usage is high are determined, adjust them to a longer interval to perform.<br>4) When the interrupt interval from the PRODUCT is short, adjust them to longer interval. For example, adjust the event occurrence by event function to longer interval.<br>5) When one CPU of multi-core CPUs is used intensively, the CPU core for the application is moved to another CPU core that is vacant. For manual setting, set with "Set Affinity" in "Windows Task Manager". For setting in the program, set with SetProcessAffinityMask() in Windows API. |
| 2   | A device which occupies the CPU of the personal computer is used.                            | 1) Check the CPU usage with installing only the PRODUCT and removing the other devices (such as board).<br>2) When the CPU usage is high despite installing only the PRODUCT, go to corrective action number 3. When the CPU usage becomes low by removing the devices other than the PRODUCT, the symptoms may be caused by other devices. In this case, contact the manufacturer of the device.  |
| 3   | A large number of refreshes is set to the PRODUCT, or the interval of link-refresh is short. | 1) Adjust the link-refresh to longer interval.<br>2) Reduce the number of refreshes.<br>3) Reduce the number of the PRODUCTS when 2 or more PRODUCTS are installed.<br><br>When a WDT error occurs after taking corrective action 1) through 3), go to corrective action number 4.   |
| 4   | The set duration of WDT is short.  | Set the WDT to adequate duration, or set the WDT error to disable.   |

### 4. Information

The following is the PCI Express<sup>®</sup>-compatible CC-Link IE Controller Network interface board that allows lower CPU usage of personal computer and improved the performance of link-refresh processing.

| Product name   | Model                                 |
|--|---------------------------------------|
| PCI Express <sup>®</sup> -compatible CC-Link IE Controller Network interface board | Q81BD-J71GP21-SX<br>Q81BD-J71GP21S-SX |

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