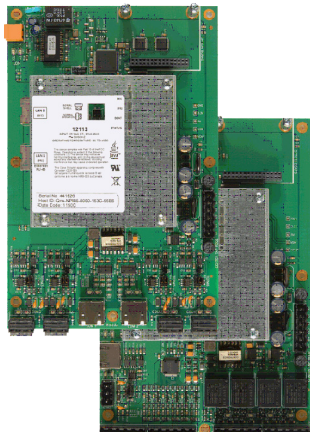


## T-RB-603 & T-RB-645



### Overview

Tridium's JACE (Java Application Control Engine), T-RB-603 and T-RB-645 are embedded replacement controller/server platforms designed for remote monitoring and control applications. These specially designed units provide direct replacement/upgrade capabilities for the older JACE-40X series and JACE-545 controllers respectively. The embedded controllers combine integrated control, supervision, data logging, alarming, scheduling and network management functions, integrated IO with Internet connectivity and web serving capabilities in a small, compact platform. The T-RB-603 and T-RB-645 make it possible to control and manage external devices over the Internet and present real time information to users in web-based graphical views.

In addition to supporting Tridium's Niagara<sup>AX</sup> Framework applications, the T-RB-603 and T-RB-645 can optionally support Tridium's Niagara R2 applications. This option provides the ideal platform for projects currently utilizing Tridium's Niagara R2 technology where a cost effective migration to Tridium's flagship Niagara<sup>AX</sup> Framework is desired. The Niagara<sup>AX</sup> Framework compatible platform can be installed and optionally configured to support a facility utilizing a Niagara R2 Framework application today. At a later date, the facility can migrate to a Niagara<sup>AX</sup> Framework application, thus spreading the cost of the migration across multiple phases.

The T-RB-603 and T-RB-645 are part of the Tridium portfolio of Java-based controller/server products, software applications and tools, designed to integrate a variety of devices and protocols into unified, distributed systems. Tridium products are powered by the Niagara<sup>AX</sup> Framework®, the industry's leading software technology that integrates diverse systems and devices into a seamless system. Niagara<sup>AX</sup> supports a range of protocols including LonWorks®, BACnet®, Modbus, oBIX and many Internet standards. The Niagara<sup>AX</sup> Framework also includes integrated management tools to support the design, configuration and maintenance of a unified, real-time controls network.

### Applications

The T-RB-603 and T-RB-645 are designed to provide installers an optimized approach to upgrading older Niagara R2 based installations or Niagara<sup>AX</sup> installations which currently utilize the JACE-40X series or JACE-545 controllers. The T-RB-603 or T-RB-645 is an exact format replacement circuit board with all connectors and mounting holes in the same locations as the original JACE-40X series and JACE-545 products. This design facilitates an easy removal and replacement process requiring minimal time to achieve.



JACE-403 Before Replacement



After Installing T-RB-603

## Ordering Information

Item	Description
T-RB-603	Base Unit including two Ethernet ports, one RS-232 port, one RS-485 port, one LonWorks® FTT-10A port, six universal inputs, and four Form C relay outputs. Web User Interface and Niagara Connectivity included. oBIX Client/Server and LONworks drivers included
T-RB-645	Base Unit including two Ethernet ports, two RS-232 ports, four RS-485 ports and one LonWorks® FTT-10A port. Web User Interface and Niagara Connectivity included. oBIX Client/Server and LONworks drivers included
NPM-256	Upgrade RAM memory to 256 MB DDR
R2-RB-6XX	Capability to utilize a Niagara R2 based application

## Specifications

### Platform

- PowerPC 440 524 MHz processor
- 128MB DDR RAM & 128 MB Serial Flash
- Optional 256 MB DDR RAM
- SLA Battery Backup
- Real-time clock

### T-RB-603 Communications

- Two 10/100 Mb Ethernet port – RJ-45 connection.
- One RJ-45 connector for RS-232 port.
- One screw terminal RS-485 port (up to 78,600 baud for MSTP).
- One LonWorks port – FTT-10A with Weidmuller connector.
- One Niagara<sup>AX</sup> option slot (see available option modules below)

### T-RB-645 Communications

- Two 10/100 Mb Ethernet port – RJ-45 connection.
- Two RJ-45 connectors for RS-232 port.
- Four screw terminal RS-485 ports (up to 78,600 baud for MSTP).
- One LonWorks port – FTT-10A with Weidmuller connector.
- One Niagara<sup>AX</sup> option slot (see available option modules below)

### Operating System

- QNX Real-time Operating System
- Sun HotSpot JVM Java Virtual Machine
- Requires Niagara<sup>AX</sup> version 3.6.47 or higher or Niagara R2 version r2.301.535 or higher

### Available Niagara<sup>AX</sup> Option Modules

#### (Not available for Niagara R2 applications)

- NPB-LON                      LON® Card
- NPB-232                      RS 232 Card
- NPB-2X-485                  Dual Port RS 485 Card
- NPB-GPRS-W                GPRS Modem with Wyless SIM Card
- NPB-ZWAVE-US             ZWAVE Card/Driver US
- NPB-ZWAVE-EU             ZWAVE Card/Driver EU
- NPB-SED-001                Sedona Wired/Wireless Card

### T-RB-603 Inputs/Outputs

- Four Form C (SPDT) relay outputs rated for 24 VAC/DC @ 2 Amps resistive.
  - One LED indicator for each relay
- Six Universal Inputs for 10K ohm Type III
  - (10K 4A1-International) Thermistor, 4/20 mA current loop, 0 to 10 volt, or dry contact.
  - 12-bit A/D converter
  - Thermistor Sensor Range -23.3°C to 57.2°C (-10° to 135° F). Input accuracy is in the range of ±1% of span, type III thermistor curve supported
  - 0–10 volt or 4/20 mA accuracy is ±2% of span, without user calibration. Uses an external resistor for current input (four provided). Self powered or board powered sensors accepted
  - Dry contacts (on UI) 20 Hz max. frequency (25 ms minimum pulse width). 3V open circuit, 300 mA short-circuit current.
- Board provides 20 VDC @ 80 mA to drive 4/20 mA powered sensors
- 24 VDC terminal and external resistor can be used if monitoring contacts that require higher voltages or higher current.
- All I/O connections are screw terminals on 0.2" centers.

**Other**

- Maximum LON devices = up to 124
- Maximum MSTP devices per RS-485 port = 31 standard load
  - 124 ¼ load devices; requires one MSTP driver per port.
- Port speeds supported are:
  - 4,800 baud
  - 9,600 baud
  - 19,200 baud
  - 38,400 baud
  - 57,600 baud
  - 76,800 baud

**Power Supply**

- 24VAC with center tap

**Environment**

- Operating temperature range: 0° to 50°C (32°F to 122°F)
- Storage Temperature range: 0° to 70°C (32°F to 158°F)
- Relative humidity range: 5% to 95%, non-condensing

**Agency Listings**

- RoHS Compliant
- BTL
- UL 916
- C-UL listed to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment"
- FCC part 15 Class B

RoHS  
Compliant

The following chart identifies the compatible 603/645 platform part numbers and optional Niagara R2 license part numbers for various Niagara R2 platforms:

Niagara R2 Platform	603/645 Replacement Platform	Niagara R2 License Option
JACE-401	T-RB-603	R2-RB-6XX
JACE-402	T-RB-645	R2-RB-6XX
JACE-403	T-RB-603	R2-RB-6XX
JACE-501	T-645	R2-6XX
JACE-502	T-645	R2-6XX
JACE-511	T-645	R2-6XX
JACE-512	T-645	R2-6XX
JACE-545	T-RB-645	R2-RB-6XX

