Tier A (client)

There is one client in this TPC-E configuration. This document describes how it should be setup and configured.

Hardware

- Install the hardware components so you have the following in the client:
  - Two processors, 2.93GHz
  - 8GB of memory
    - Follow the suggested memory population order on the sticker inside the system cover
  - Two 160GB SATA drives, both in the top row of drive bays
  - One 10Gb Ethernet adapter
- System Settings:
  - Boot the system and press F1 when prompted to drop into UEFI setup. Once there:
    - Load default settings
    - Set the correct date and time
    - Set a static IP address & mask for the IMM, so it is on your lab network
    - Under System Settings -> Operating Modes -> Choose Operating Mode, select "Performance Mode"
    - Save settings and then turn the system off
- Management network:
  - Connect the server's System Management Ethernet port to the lab network
  - Another system, such as the driver, on the lab network can now manage the server via a web browser pointed at the static IMM address entered above
- Update server code levels:
  - Download the latest system code levels for this server from IBM.COM:
    - IMM
    - UEFI
    - Diags
  - Connect to the IMM via a web browser. After logging in, click on "Firmware Update" on the left side. Browse to and select the newly downloaded IMM update file (update the IMM first, with the system's power off). Click [Open], then click [Update], and follow the onscreen directions. The IMM will then be updated.
  - When the IMM update is done, restart the IMM and wait until you can log back into it.
  - Power the system on and, after POST, use the IMM interface to update the UEFI and diagnostics code.
- When done, power the system off.

OS

<u>Creating the internal OS array:</u>

Boot the system. During POST press F12 when prompted, and select to boot "Legacy Only".
Press Ctrl-C when prompted in order to drop into the LSI Logic Configuration Utility.

1. Once in the utility, insure the SR-BR10i controller has Status = "Enabled" and Boot Order = "0"
2. Select the SR-BR10i controller. [Enter]
3. Select "RAID Properties" [Enter]
4. Select "Create IM Volume" [Enter]
5. For each drive, change "RAID Disk" to [Yes]
6. Press C to create the array, then save changes and exit. The array is created.
7. Exit the configuration utility and reboot the system.

OS Installation and Configuration:

From this point, install and configure the OS. Follow the OS installation and configuration settings in the Tier-B setup document, with the following changes:

- Use Windows Server 2008 R2 x64 Standard Edition
- Name the client "vclient30"
- There is no need to give Administrator the right to lock pages in memory on the client
- Use the same user ID (Administrator) and password on the client that was as used on the database server.

Device Drivers:

There are Windows-compatible versions for most of these code updates. Download these versions from IBM.COM, copy them over to the server, run the EXE there, and choose to do the update immediately, rather than extracting the files for later.

- Networking:
  - Download the latest networking drivers and firmware for this system
  - Download the device drivers for the 10Gb Ethernet adapter
  - Install the device drivers for both the onboard Ethernet and the 10Gb Ethernet adapter
  - Install the firmware update for the onboard Ethernet
- Chipset
  - Download the latest chipset INF files for this system
  - Install
  - Reboot when prompted
- Video
  - Download the latest video drivers for this system
  - Install
  - Reboot when prompted
- Onboard SAS (update the default Microsoft drivers)
  - Download the latest onboard SAS drivers and firmware for this system
  - Install drivers
  - Install firmware
  - Reboot
- Download the latest SAS hard drive update program.
  - Run the program to update the firmware on any downlevel drives.

IP Addresses & Network Connections

- One of the onboard Ethernet ports will be used for the lab network. Connect the upper of these ports to a Gb Ethernet switch that will create the lab network, linking the database server, client, driver, and any other needed systems. This network is used to copy files between the systems, synchronize system times, manage the systems, etc.. Its only use during a benchmark run is for the client to report its status and results to the driver.
- The 10Gb adapter will be used for connecting the client directly to the database server. This connection is made with a FC cable. This network is used during the benchmark run.
- IP addresses:
  - Upper onboard port: Set IP as needed for your lab network
  - 10Gb adapter port: Set static IP 10.10.30.30 / 255.255.255.0

Miscellaneous OS Setup:

- Copy TPC-E kit files to the server. See the kit documentation for details.
  - The client will be used for kicking off checkpoints with the proper timing. See RunRegularCheckpoints.bat.
  - StartTpce.BAT will be used to start the MEE and CE processes on the client.
- Update the hosts file in c:\windows\system32\drivers\etc so it has entries for the server, clients, and driver systems
- Place a BAT file, synctime.bat, into the startup folder to synchronize the time with another server every time the system is rebooted. The driver, server, and client will have this same

BAT file in their startup folders, and they all sync their times off of the same system. The systems are rebooted before a run of TPC-E and this insures that all of the system clocks will be synchronized. Test the BAT file to be sure it works.

SQL Server Client Code

Installation:

- First, the .NET Framework Feature must be installed:
    - Open Server Manager and under Features, select "Add Features".
    - Place a check next to ".NET Framework 3.5.1" (under ".NET Framework 3.5.1 Features")
    - Press [Install] to install the feature.
- We will install SQL Server 2008 R2. You will need this media.
- Run setup.exe
- On the SQL Server Installation Center window, click "Installation"
- Click "New installation or add features to an existing installation"
- All setup support rules pass [OK]
- Specify free edition "Enterprise Evaluation" [Next>]
- Accept the license terms [Next>]
- Setup Support Files [Install]
- Setup Support Rules – none failed [Next>]
- Setup Role- Select "SQL Server Feature Installation" [Next>]
- Feature Selection- Select the following features for installation:
    - Shared Features
        - Client Tools Connectivity
        - Management Tools – Complete

    [Next>]
- Installation Rules- none failed [Next>]
- Disk Space Requirements [Next >]
- Error Reporting – Insure option is unchecked [Next>]
- Installation Configuration Rules – none failed [Next>]
- Ready to Install [Install]
- Complete [Close]
- Close the SQL Server Installation Center

Configuration:

- Start the SQL Server Configuration Manager
    - On the left, expand "SQL Native Client 10.0 Configuration"
        - Highlight "Client Protocols"
            - On the right, double click on "TCP/IP"
                - Set the default port to 1403 [OK]
    - On the left, expand "SQL Native Client 10.0 Configuration (32bit)"
        - Highlight "Client Protocols"
            - On the right, double click on "TCP/IP"
                - Set the default port to 1403 [OK]
        - Highlight "Aliases"
            - Move the mouse over the right side and right-click. Select "New Alias…"
            - You will create several aliases, according to this table:

Client	Alias	Alias Name	Port Number	Server
vclient30	1	snn0	1430	10.10.30.1
	2	snn1	1431	10.10.30.1
	3	snn2	1432	10.10.30.1

	4	snn3	1433	10.10.30.1
	5	snn4	1434	10.10.30.1
	6	snn5	1435	10.10.30.1
	7	snn6	1436	10.10.30.1
	8	snn7	1437	10.10.30.1

- Select [OK] after creating each one.

  - Close the SQL Configuration Manager

- The TPC-E kit client programs, running on the clients, will be pointed to those aliases to connect to SQL Server at the IP address and port number shown. See the TPC-E kit documentation for details.