Version	Date	Author(s)	Notes for this Version
Previse Inc. Specification			
Bailey DCS Simulator Host Computer Platform			
7	20 Sept 2013	Engineering	Update for Re-Release
8	25 Nov 2014	Engineering	Minor maintenance updates

1. Introduction

This document provides specifications for the computer required to execute the Previse Bailey DCS Simulator.

NOTE: Contact Previse to help specify the computer if your Bailey DCS application has (a) more than 35 controller modules, or (b) more than 100,000 function blocks.

Graphics Speed and Resolution is not Important

A lot of the focus in modern day computers is to deliver faster and higher resolution graphics. This is not at all important to the Bailey DCS Simulator.

Calculation speed, and memory read/write speed, is much more important, and that defines the core specifications, particularly for high performance systems.

2. Hosting Specifications

2.1 Intel or Equivalent Computer

Bailey DCS Simulator is only available for Intel based computer or equivalent.

2.2 Operating System

The following table defines operating system support for the Previse Bailey DCS Simulator.

Operating System[1]	Without SCSI CIU	With SCSI CIU
Windows Server 2003	✔	✖
Windows Server 2008	✔	✖
Windows XP Professional 32 bit	✔	✖
Windows 7 Pro 32 bit	✔	✔
Windows 7 Pro 64 Bit	✔	✖

Vista, Windows 8 and Windows Server 2012 are not supported.

2.3 CPU Chip Set Requirement

The following table describes the CPU specifications for three Low, Medium and High performance systems, which Previse defines as:

- **Low Performance** – All part number BDS-HMI installations, and all other installations with less than 10 controllers and less than 10,000 blocks.

- **Medium Performance** – All part number BDS-CC installations, and all other installations with 10 to 35 controllers or 10,000 to 100,000 function blocks.

- **High Performance** – OTS (Operator Training Simulator) applications with greater than 100,000 blocks or 35 controllers.

Aspect	Low Performance	Medium Performance	High Performance
Intel Family	Intel Core i5 or equivalent minimum	Intel Core i5 or equivalent minimum	Intel Core i7 or equivalent Must support hyperthreading
CPU Speed	2.5 GHz minimum	2.8 GHz minimum	3.0 GHz minimum (Faster preferred)
Cache	2MB L2 Cache minimum	2MB L2 Cache minimum	2MB L2 Cache minimum
# of Core	No requirement	Dual Core minimum	Quad core minimum (8 preferred)
RAM Speed	No requirement	500 Mhz minimum	1,333 Mhz minimum (1,600 preferred)

2.4 RAM Size Requirement

The RAM requirement is one of the most difficult aspects to specify.

Most computers today will come with at least 4 Gbyte of RAM, which is much more than the Bailey DCS Simulator needs. Even in systems with 200,000 or more function blocks (e.g. much larger than most of the DCS systems) the Bailey DCS Simulator will consume less than 200 Mbyte of RAM will executing. However, despite this, RAM size is *critically important* to correct operation of the Bailey DCS Simulator.

The reason for this is that if insufficient RAM is present, the Microsoft operating system will swap part of all of the Bailey DCS Simulator to "virtual memory", which will result in unpredictable and random behavior by the Bailey DCS Simulator. The Bailey DCS

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[1] Operating systems not shown are not supported.

Simulator is a RAM memory intensive application, as read/write operations occur to all parts of the simulator in RAM multiple times each second. In fact, if the simulator is swapped in and out of virtual memory, the end result will be difficult to troubleshoot.

Running the Simulator together with other Applications

The memory issue normally arises NOT from the Bailey DCS Simulator, but from the operating system and OTHER applications that you may have running on the same computer, and which are beyond Previse control.

Previse encourages you to run the simulator with other applications on the same PC but you **must** ensure that you have enough RAM.

NOTE: The simulator must remain in RAM, and MUST NOT be swapped into virtual memory (i.e. stored temporarily to hard disk). You MUST ensure that you have enough RAM to accomplish this, regardless what other applications are running.

The best way to ensure that the Bailey DCS Simulator remains in RAM is:

1. Ensure that there is enough RAM memory for ALL of the applications on the PC.

2. If you do not have enough RAM, then you must remove some applications.

3. An error message is provided for insufficient RAM (Users Manual Appendix C)

Recommended RAM Size

Previse recommends that you install at least 4Gbyte of RAM, and more in 64 bit systems.

2.5 Minor Specifications

The following table defines Bailey DCS Simulator specifications that are normally considered minor or routine, and not tied to system performance.

Aspect	Specification	Notes
Hard drive	Minimum 30 Gbyte	The hard drives available in most current computers are more than sufficient. See disk space guidance below.
CD-ROM	48X CD-ROM	For software load
USB PORT	ONE USB port minimum	For Bailey DCS Simulator hardware key.
(OPTIONAL) Modem	56K v.92 Data/Fax V92DF	For remote support
Network Interface	Minimum 100BaseT	In high performance distributed OTS (Operator Training Simulator) applications, you should use Gigabit Ethernet rather than 100BaseT.

Disk Space Guidance for Simulated DCS State files

It's highly unlikely that you would ever need more than 30Gbytes for storage of DCS state files, but if you are concerned about it you can calculate you approximate disk space requirement for DCS state files as follows:

- Disk space needed = # of DCS state files X DCS State File Size.

- DCS State File Size = 350 bytes per function block on average + 500 Kbyte (i.e. if you have 100,000 function blocks in your application the DCS state file size is estimated at ~35 Mbytes).

2.6   Hosting Implications of INICT03-SCIL Emulation

The Bailey DCS Simulator will optionally support either 1 or 2 emulated CIU to be of the SCSI variety (i.e. emulated INICT03-SCIL) rather than serial RS-232. There is additional cost, and additional equipment and requirements if you elect to use a SCSI CIU.

Operating System Impact

If you require SCSI CIU support then you must use the Microsoft Windows 7 Pro 32 bit operating system. SCSI CIU is not supported for other operating systems.

Impact on Port Requirements

For each SCSI connection required, you must provide one (1) 5.0 volt PCI slot compliant with PCI version 2.2

Computer Physical space

The accompanying picture shows the SCSI adapter card that will be installed in each slot. Must ensure that slot space (i.e. volume) accommodates this card.