



Overview

300mm and the continuous technology shrink in the semiconductor industry create a permanent and dynamic evolution of processes, equipment and continuous requirements for improvement.

Automation and Process Control play a major role to accompany the fab challenges, contribute to fab efficiency and extend the fab lifetime at very low cost. The automation and process control benefits are well documented in the different literatures.

To accompany the fab during its life time and ease the task of IC makers, as well as, the Equipment Manufacturers, Si Automation, capitalizing several years of experience in the fab, designed a software framework, SBSS, that meets and exceeds present and future fab requirements. SBSS addresses the big picture, it is a global and coherent solution designed to make every equipment in the fab a golden contributor to the fab efficiency.

SBSS can be used for new equipment or existing equipment. For new equipment, **SBSS provides a global solution** in one single platform to address automation and process control requirements. For existing equipment, SBSS opens new horizons with no impact on the existing architecture.

SBSS is provided with operating tools that operate fab wide and make an existing or a new fab fully compliant with the EEC guidelines.

What is SBSS?

SBSS is the core technology of SiA products. SBSS is a distributed software framework:

- Using a message bus core (sbManager),
- Using a XML compliant configuration Script engine,
- Running independent executables called Automation Drivers (AD).

SBSS is provided with administrative and development tool kit.

Who can use SBSS?

In the fab, every one will find in SBSS the solution for a given issue:

- With SBSS process, equipment engineers can monitor their equipment and perform with one single tool, advanced equipment and process control,
 - Automation engineers can use SBSS to write scenarios for automation, and operators find a standard tool in the fab with the same GUI and the same interface,
 - By integrating SBSS in their tools, OEMs will find a powerful framework that opens horizons for next generation equipment and helps them to capitalize on their expertise.
-

SBSS Benefits

SBSS framework provide immediate benefits:

Time to market

90% of IC makers requirements for automation and process control are available. Engineers can also create their own application by configuration.

OEM will save time and development cost, using SBSS to develop new applications and interface with the existing.

Re-usable

SBSS is a open source framework, applications and dlls developed with one platform can be re-used in another.

Investment secured

SBSS provides scalable and incremental capabilities. Each package can be an entry point for SBSS. Upgrading to another package can be done at any time without modification of the applications developed with the previous package. SBSS secures the investment as it provides a cost effective platform to accompany equipment evolution.

SBSS Main Components

SBSS framework is based on the more stable and reliable parts of Microsoft Windows NT. With an XML compliant configuration script language and a development and administrative toolkit, it allows the End User to self maintain, enhance, duplicate and deploy its applications. The script is stable over time and OS independent, it works with any compilation system and remains accurate in case of core evolution or adaptation to Windows 2000, Windows XP pro or LINUX.

SBSS is provided with

- A wide library of Templates and hard coded DLLs drivers that cover more than 90% of equipment requirements for automation and process control,
- Integrated Development Environment to help to configure and to develop new applications.

HAREL STATE LOGIC

SBSS uses Harel State Logic, and combines a traditional hard coding part (DLLs driver to implement basic function) and a XML scripts part. An SBSS application is a network of state logic independent components. Each component can interact with each other.

SBSS MANAGER (SBMGR)

sbManager is a service that starts automatically at boot-time. This component manages the system, starts and stops the Automation Drivers (AD's), or dynamically registers additional applications at run-time (like the GUIs). It also manages the internal message bus and allows the AD to communicate with each other and the message bus itself, or with the hardware resources.

The communication with the outside world is based on a TCP/IP layer.

Peripheral interface :

Easy Communication interface implementation capabilities for peripheral integration (Robot, sub-system, sensors, Actuator...),

- libraries of sensors interfaces,
- libraries of protocols (ModBus, ModBus TCP,...).

3RD PARTY APPLICATION INTERFACE

SBSS users can develop their own SBSS DLL code to perform specific drivers and functions, and build with the SBSS logic scripts, modular application around SBSS framework.

An ActiveX can be used to interface with SBSS an application developed in another language.

SQL DATA BASE

SBSS embedded in SBSS MoPack and SBSS GPack, a SQL Data Base for data storage and local or distant access to Data base communication under SQL Protocol.

WEB SERVER

Ready to use Web Server is linked to the SQL Data Base. It allows the development of application pages or Graphical user's interfaces (GUI), using HTML/XML/PHP/JAVA, to be displayed, through any web browser, data from the embedded data base; it also allows the monitoring and control of application parameters.

Packaging

3 packaging levels are available (please see the Products Overview brochure) and each can be purchased separately:

- Automation Package (SBSS APack), for Equipment Interface, Equipment control and management,
- Monitoring Package (SBSS MoPack) for Equipment and Process monitoring,
- Global Process Control Package (SBSS GPack) includes SBSS MoPack and adds the GPC methodology to the control capabilities. GPC is unique in the market and goes beyond SPC multivariate to offer real time fault identification.

A specific packaging can be offered for OEMs:

- SBSS as framework integrated to process equipment provides advanced communication capabilities. SBSS makes the equipment ready for next generation technologies in compliance with the EEC guidelines.

Additional Information

■ Hardware Requirements

SiA recommends the utilization of the SilverBox™ to ease the upgrade and the maintenance of the software and to provide advanced hardware capabilities.

A Personal Computer configured with Windows NT or 2000, 128 MB RAM, 4GB Hard Disk Drive and 233Mhz microprocessor is the minimum required to run SBSS.