



SiPass™
Integrated

SiPass integrated (2.40) System Limits and Capabilities

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- **Full Comparative System Limits**
 - **Feature Capabilities**

SiPass integrated is an advanced access control and security system designed to meet the needs of medium to large facilities. SiPass provides a number of integrated capabilities to ensure that the security requirements of any facility can be easily handled.

The range of applications that can be handled by SiPass integrated and number of parameters that can be customized for each facility is exhaustive. With such flexibility, the limits on such a system can vary greatly. The System Limits detailed in this document outline the absolute maximum values available / configurable. However, it must be kept in mind that as one system value is maximized, another system value may need to be compromised to ensure operational integrity and communications availability. This after all, is not a limitation of SiPass integrated but simply a limitation on the systems being used.

General Details

The following limits relate to the SiPass integrated System in General:

Client-Server Architecture	Yes
Events per second	55 (continuously, 24/7)

Note: Burst traffic speeds above 55 events per second are achievable but not sustainable for long periods of time.

SiPass Server System Requirements:

Operating System	Windows XP Professional (SP2) Windows Vista Business Windows 2003 Server (SP2)
DBMS	MS SQL Server 2000 (SP4) Microsoft MSDE (SP4) MS SQL Server 2005 Standard Edition MS SQL Server 2005 Express Edition
Processor	Pentium IV (minimum) ¹
Memory	1024 MB (minimum), 2GB Recommended
Hard Disk Drive	80 GB
Ports	Ethernet 10MB / 100MB (100 MB Recommended)

Please Note:

The MSDE/MSSQL 2005 Express Edition database applications have been limited by Microsoft, and as the database transactions increase, the performance of database application will decrease. As a general rule of thumb, a SiPass integrated Server used in conjunction with either of these versions of SQL should not exceed 10.000 users, 50 doors, or more than 5 workstation clients. Whilst some trade-offs can be made between these numbers or lower traffic sites can quite happily exist, larger installations should purchase the full SQL Server database license to ensure the integrity of their system at all times.

¹ When using SQL Server 2005 with SiPass integrated it is recommended that you purchase the highest grade PC possible to ensure optimal performance.

SiPass Workstation Client System Requirements:

Operating System	Windows XP Professional (SP2) Windows Vista Business Windows 2003 Server (SP1) Windows XP Home (SP2)
Processor	Pentium IV
Memory	512 MB (minimum)
Hard Disk Drive	40 GB
Ports	Ethernet 10MB / 100MB
Client Server Architecture	Yes
CCTV Capability	To view live images from a CCTV system, a video capture card is required. The recommended card is the "Falcon".

Please Note:

It is recommended that larger facilities install PCs with higher grade specifications and networks that boast appropriate communications speeds.

Database Details

The following values outline the SiPass database details:

Relational Database	Yes (MS SQL Server 2000/2005)
ODBC Database	Yes (MS SQL Server 2000/2005)
Database Import	Yes ²
Database Export	Yes ²
Automatic Change Propagation	Instantaneous
User Definable Fields	196 Custom fields (up to 14 custom pages / tabs, with up to 14 fields on each tab). Type = Numeric, String, Boolean, Date, or Lookup
Automatic Card Activation / Deactivation	Yes (at controller)
Number of Badges per cardholder	2
Number of Access Profiles per cardholder	3 (workgroup, custom, temporary)
Support for badge Status	Void, Valid, Out of Time, Facility Error
Bulk card Creation	Yes (Start, End)
Extended Door Open (ADA)	Yes (configurable per door)

Please Note:

Existing user defined fields cannot be removed from the database.

² By using the integrated Import/Export Tool, Data Synchroniser or HR API.

System Capacities

The following values outline the absolute maximum system capacities

Max. Cardholders (Per System)*	Unlimited ³
Max. Cardholders (Per Controller)*	500.000 ³
Max. Access Levels*	65.535
Max. Access Groups*	65.535
Max. Access Levels Per Card*	65.535
Maximum Readers Per Controller	96 (Please refer to the following page for a description of FLN load ratings)
Max. Controllers	499 ²
Max. Monitoring Points (Inputs) per Controller	768
Max. Controlled Points (Outputs) per Controller	384
Max. Definable Holidays*	65.535
Max. System Operators	65.535
Max. System Workstations*	140

¹ The maximum number of cardholders is based upon an entire system (there is a maximum cardholder database size for each controller) Please keep in mind that average search times, when searching for all cardholders in SiPass is approximately 1 second per 5.000 cardholders. More targeted searches (eg: workgroups) will yield much quicker results.

² The maximum number of controllers is dependant upon the following factors:

- Network Speed
- Network Configuration
- Activity at each controller (eg: volume of access attempts and alarms being triggered)
- Server PC specifications

³ It is recommended that if you choose to backup the database using onboard flash, that you do not exceed 150,000 cardholders per ACC.

*** Please be aware (as outlined on the front page), that as one system limit is increased the ability for other parameters to be maximized decreases. For example, a system with 100.000 cardholders should not be designed to co-exist with 65.535 access groups as both these parameters require database storage and processing power simultaneously. A more sensible approach would be to have a system with 100.000 cardholders and lets say 400 well designed access groups that serve the needs of these cardholders.**

Please Note:

Users who have installed an MSDE / MS SQL Server 2005 Express database will not achieve the above limits. Please refer to the “General Details” section for more information regarding the limitations of MSDE.

Bandwidth Calculations for Server to client communications:

Client-Server Bandwidth 100MB Link: (Assuming one client per link)

- Normal Operational Bandwidth (bytes/second) = 0.1 %
- Peak Operational Bandwidth (bytes/second) = 0.25%

Client-Server Bandwidth 128KB Link (Assuming one client per link). It is recommended that 128KB connections only be used in instances where client traffic is expected to be low (this means minimal database changes are made, no use of graphic maps is required, cardholder photographs are not used etc.). Otherwise, a performance degradation may be observed, particularly during peak times, as the figures below indicate.

- Normal Operational Bandwidth (bytes/second) = 76 %
- Peak Operational Bandwidth (bytes/second) = 1000%

To serve as an example, normal operation is a standard workstation client receiving audit trail messages from the SiPass server. Peak operation may exist when audit trail is being received by a workstation client at the same time a cardholder record is being retrieved for display on the screen

Controller Details / Capacities

The following values outline the capacities and features of the Advanced Central Controller (ACC):

Networking Protocols	TCP/IP
Required Network Speed	56KB minimum, 100MB Ethernet recommended
Dial-up Controller Communications	Yes
Redundant Controller Communications	Yes, via modem
Embedded Processor	Yes
Scalable Memory	No
Controller Operating System	Nucleus RTOS
Support for Static IP Address	Yes
Flash Memory / RAM	Yes - 6MB / 64MB RAM
Onboard Ethernet	Yes
Communications Encryption	AES
Peer-to-peer communication between controllers	Yes
Controller Sub-bus FLN (load splitting)	6
Local Input	1
Local Output	1

Maximum number of devices per FLN (Load Recommendation):

Field Level Network Device	Load Rating
Single Reader Interface (SRI)*	1
Dual Reader Controller (DRI)	2
Input Point Module (IPM)	4
Output Point Module (OPM)	4
OPM for Elevator Floor Control Only	2
Eight Reader Interface (ERI)	8
Eight Input / Output Module (8IO)	4
DC12 (Door Central)	2
DC22 (Door Central)	2

Please Note:

The Maximum load rating recommended per FLN on an ACC = 16. Any combination of devices can be used, but should not exceed a combined total of 16. For example, 4xDRI, + 1xIPM + 1xOPM could all be connected to the same FLN as the combined load rating of these devices is 16. FLN 3a and 3b should be counted as a single FLN for load rating purposes.

* Not available in Europe

Bandwidth Calculations AC5100 – SiPass Server (for a security network with up to 100 ACCs configured):

For 100MB Ethernet link –

Standard Operation = 0.07% bandwidth

Peak Operation = 1% bandwidth

For 128KB remote link – It is recommended that 128KB (or slower) connections only be used in instances where ACC traffic is expected to be medium to low (this means a small number of access attempts, few alarms, etc.). Otherwise, a performance degradation may be observed, particularly during peak times, as the figures below indicate. Please note that these peaks would be observed during initialization etc., and very heavy traffic only and the operation of an ACC is still suitable for remote modem connection.

Standard Operation = 128% bandwidth

Peak Operation = 240% bandwidth

Reporting

The following values outline the SiPass integrated reporting capabilities:

History Log Reporting	Yes, Customizable log entries
Database Reporting	Yes
Mustering Reporting	Yes
T&A Export	Yes, Tab Delimited, CSV formats
Reports by Email	Yes
Report Export	Yes
Scheduled Reporting	Yes
Event Triggered Reporting	Yes
Batch Reporting	Yes

Alarm Management

The following values outline the SiPass integrated alarm capabilities:

Multimedia Alarms	Yes
Alarm Instructions	Yes, multi-media compatible
Graphic Map Capabilities	Yes, Real-time
Alarm Sounds	Yes
Alarm Priority Levels	1000, configurable
Alarm Forwarding	Yes, Server to Server, SMS, Email, Pager

Miscellaneous

The following values outline the SiPass integrated values:

Foreign Language Support	Yes, English, German, French (Spanish, Dutch, Polish are planned) Please Note: Only one language per system.
Smart Card Compatibility	Yes, Encode and Read
Smart Card Formats Supported	MIFARE, 1KB or 4KB memory
Remote Diagnostics	Yes*
UL Approvals	Yes*
CE Approvals	Yes*
C-Tick Approvals	Yes*
Supported Image Capture Devices	Falcon, Winnov, USB Cameras
Signature Capture Devices	Topaz HSB (USB) signature pads

* Please refer to the individual documentation for the certification relating to that device.

Please Note:

Web Cams are not supported for the capture of images.

Advanced Access Control Features

The following values outline the SiPass integrated alarm capabilities:

Visitor Management	Yes
Guard Tour	Yes, up to 100 defined tours, 30 stop points per tour, 20 concurrent active tours, up to 500 guards
DVR Management	Yes, Siemens SISTORE, Kodicom, Dedicated Micros
CCTV Interface	Siemens SIMATRIX, Pelco, Phillips
Anti-Passback	Yes, across multiple controllers
Timed Re-entry	Yes, 0-1440 minutes (1 day)
Event Scheduling	Yes, host and controller based routines 65.000 programmable controller based event routines, 1.000 maximum recommended limit for simultaneous triggering
Occupancy Restrictions	Yes
Low Level Elevator Control	Yes
Time Scheduling	Yes, max 65.000 time schedules
Manual Override	Yes
Image Verification	Yes
Photo Capture	Yes, using video capture card input, or USB camera device
Integrated Badge Creation	Yes
Individual Operator Partitioning	Yes
Operator Preference Customization	Yes
Online Help System	Yes, HTML help system
Client / Server Encryption	Yes, via IPSec configuration

Low-Level Elevator Control per ACC:

Maximum Number of floors	256 (16 per OPM)
Maximum Number of OPMs per FLN	8 (if used only for elevator control purposes only)
Maximum Number of Elevator Cars	48 per ACC (8 DRIs per FLN)
Maximum Number of Cardholders	500.000 per ACC
Maximum Number of Elevator Banks	16, A bank is a group of elevators that services the same floors for the same purpose. For example a group of 4 passenger elevators that serviced the first 6 floors including the ground floor.

Please Note:

Multiple ACCs can be combined for the control of an elevator system(s). This means that the capacity of SiPass to handle elevators is virtually unlimited. The above table represents the limits per ACC to control an elevator system.

Also note that maximum values above need to be adjusted to trade off between number of elevator floors being controlled and number of elevator cars carrying passengers. For example, a building that had sixteen elevator cars could service up to 32 floors per car. This would require the installation of 8 x DRIs for access control within the elevator car itself and 32 X OPMs to service the 32 floors per car.

Finally, please be aware that there is a physical limit on the number of live video streams that can be displayed on any PC including the SiPass Workstation client and Server PC. This will usually depend upon the PC hardware itself and should be considered in the design and use of an integrated security systems with both access control and video streaming on the same PC.