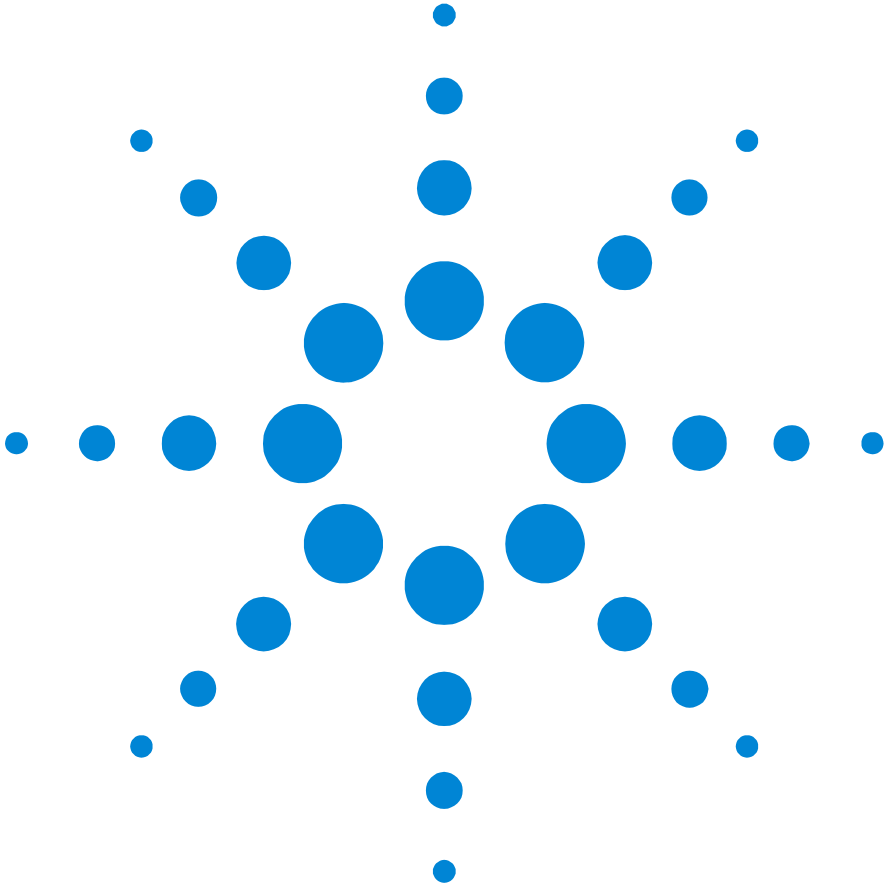


Agilent E2977A System Validation Package

Test API Reference

Agilent Technologies

Important Notice

Revision

May 2003

Printed in Germany

Agilent Technologies
Herrenberger Straße 130
D-71034 Böblingen
Germany

Authors: t3 medien GmbH

Warranty

The material contained in this document is provided "as is," and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Restricted Rights Legend

If software is for use in the performance of a U.S. Government prime contract or subcontract, Software is delivered and licensed as "Commercial computer software" as defined in DFAR 252.227-7014 (June 1995), or as a "commercial item" as defined in FAR 2.101(a) or as "Restricted computer software" as defined in FAR 52.227-19 (June 1987) or any equivalent agency regulation or contract clause. Use, duplication or disclosure of Software is subject to Agilent Technologies' standard commercial license terms, and non-DOD Departments and Agencies of the U.S. Government will receive no greater than Restricted Rights as defined in FAR 52.227-19(c)(1-2) (June 1987). U.S. Government users will receive no greater than Limited Rights as defined in FAR 52.227-14 (June 1987) or DFAR 252.227-7015 (b)(2) (November 1995), as applicable in any technical data.

Safety Notices

CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING/DANGER

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Trademarks

Windows NT ® and MS Windows ® are U.S. registered trademarks of Microsoft Corporation.

Contents

Introduction

The Test API library is a C++ library that provides all functionality of the System Validation Package. The System Validation Package is based on the application interfaces (C-API) of Agilent PCI and PCI-X testcards.

The Test API library provides a number of tests that can be run immediately or be configured for individual test needs.

This library uses an object-oriented, class-based approach. The SVP Test API Reference describes all classes and their public members that are recommended for direct use.

Structure of the Test API Reference

The SVP Test API Reference is divided into the following sections:

- Classes of the Test API Library

  Describes the classes of the `SVPBase`, `SVPList` and the `SVPPropBase` packages and all their public members that are recommended for direct use.

  Every class description starts with an overview of the class members in logical order, followed by the full description of the characteristic members in alphabetical order.

- Classes of the Service Library

  Describes the classes of the Service library and all their public members that are recommended for direct use.

  In addition to the Test API library, the Service library `servlib` provides a number of classes for general purposes, such as error handling.

- Enumeration Definitions

  Describes all defined enumerations that are used in the methods of Test API library and Service library classes.

- Setup File Reference

  Describes all properties, along with their names and value ranges that are needed when you modify the SVP settings files.

- Overall Example Programs

  Shows a simple command line executable program and a custom test function.

Basic Information for Using the Test API

You can find basic information on using the SVP Test API library in the following sections:

Platform-Relevant Information

Platform Independence

Portability of the Test API software is ensured by avoiding platform-dependent code. Most parts are implemented using plain ANSI C++, which can be compiled by any standard C++ compiler.

Systems that do not have a stable operating system or no C/C++ compiler can be tested using an external host and the Front Side Interface (FSI).

Platform-Dependent Features

Communication with E2920 series PCI testcards uses the E2920 series C-API. Communication with PCI-X testcards uses the PCI-X C-API. Both contain the necessary drivers to communicate with the testcards.

PCI C-API and PCI-X C-API are available in binary form for a number of operating systems, and as compilable source code for other systems.

The platform and operating system determine, which drivers are necessary for internal communication with the testcard and for the memory.

Drivers for Windows NT are available and shipped with the product, other operating systems may need to be ported and compiled by the user.

Conventions

In the libraries, the following conventions are used for naming classes, methods, enumerations, variables and constants.

Naming of Classes

Classes are written with lowercase and uppercase letters. The prefixes of the classes indicate to which library they belong:

- Classes of the Test API library begin with `SVPxxx`.

  Example: `SVPBase`

- Classes of the Service library begin with `Bxxx`.

  Example: `BErr`

Naming of Methods

Methods are written with lowercase and uppercase letters and indicate the action.

Example: `RemoveObject`

Naming of Enumerations

Enumerations are written with uppercase and lowercase letters. Each enumeration name begins with `Exxx`.

Example: `ECardType`

Naming of Variables

Variables are written with uppercase and lowercase letters, but the prefix is always lowercase.

Example: `strID`

Naming of Constants

Constants are written with uppercase letters.

Example: `S_WAIT`

Exception/Error Handling

The Test API uses the C++ mechanism for handling exceptions. All methods of the various objects will handle some C++ exceptions internally and throw `BErr` error objects in case of unrecoverable errors.

Example:

When trying to open a file that does not exist, a method would throw a `BErr::FILENOTFOUND` error along with a descriptive error message. The `BErr` object can be used to analyze the error, or may simply be printed as an error message to the console.

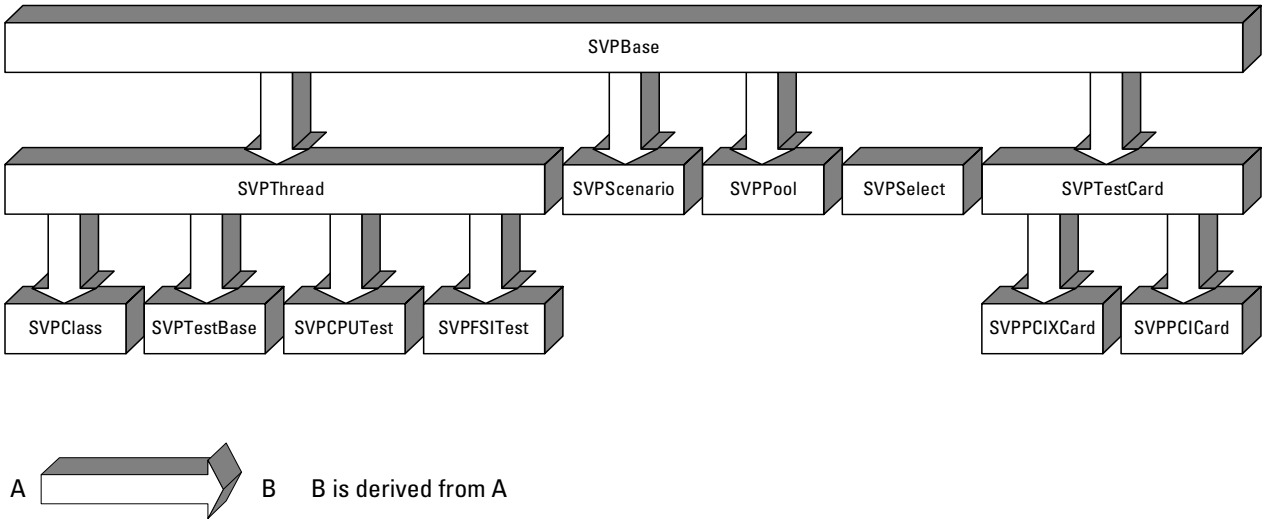
A user program should therefore encapsulate all calls to Test API functions and class methods in `try` blocks; see *"Overall Example Programs" on page 123*.

Classes of the Test API Library

The Test API Library includes three independent packages of classes: the `SVPBase` package, the `SVPList` package and the `SVPPropBase` package.

SVPBase Package Overview

The following figure shows the class architecture of the `SVPBase` package:



SVPBase Package Classes

`SVPBase Class` is a base class that implements all fundamental features of an object and provides a standard means for accessing objects. In this context, objects are the whole SVP application (`SVPClass`), a scenario (`SVPScenario`), a test (`SVPTestBase`) or a testcard (`SVPTestCard` and derived from it `SVPPCICard` and `SVPPCIXCard`).

From this class, the following classes are derived:

- `SVPThread Class`

  Provides basic threading functionality for running several tests in parallel. From this class, the following classes are derived:

  – `SVPClass Class`

    Represents the whole SVP application.

  – `SVPTestBase Class`

    Provides all testing functionality of the SVP application.

  – `SVPCPUTest Class`

    Is used to perform tests with CPU interaction.

  - `SVPFSITest Class`

    Is used to perform tests with FSI interaction.

- `SVPScenario Class`

  Provides the features of a scenario. A scenario is used to put several tests together for running these tests in parallel.

- `SVPPool Class`

  Is used to manage the available tests and testcards.

- `SVPTestCard Class`

  From this class, the following classes are derived:

  - `SVPPCICard Class`

    Covers all E2926/7/8 and E2940 testcards.

  - `SVPPCIXCard Class`

    Covers all E2922/9 testcards.

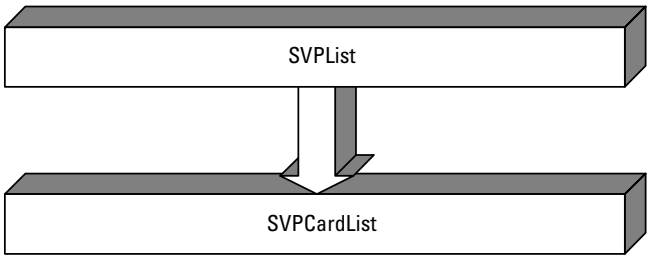
SVPSelect Class

The Test API library includes also the `SVPSelect` class, which is independent from all other classes in the `SVPBase` package. The `SVPSelect` class is normally not needed in the user program. It is mainly used by the GUI.

Each class of this package has its own `SVPPropBase` package.

SVPList Package Overview

The following figure shows the class architecture of the `SVPList` package:



SVPList Package Classes

The `SVPList` package provides the following classes for administration of SVP objects (scenarios, tests and testcards):

- `SVPList Class`

  This class provides a container class for SVP objects. It provides methods:

  – for handling the deletion and creation from settings files

  – for walking through the lists

- `SVPCardList Class`

  This class is derived from `SVPList`. This class provides methods for scanning and listing available testcards.

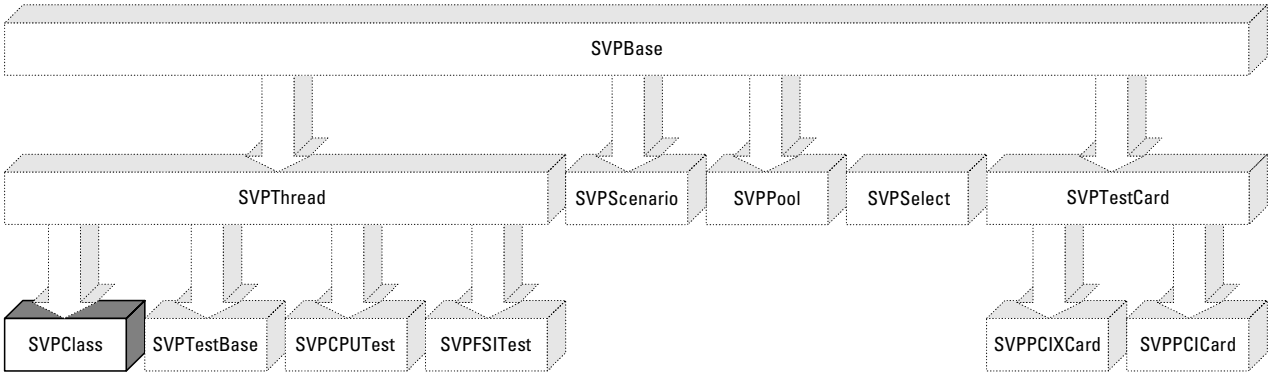
SVPPropBase Class

The `SVPPropBase` class provides functionality for handling properties and settings.

This class includes the `CPropEl` class that allows you to assign different types of values (for example, integer, string or boolean values) to the same class.

SVPClass Class

Description The `SVPClass` class provides the main interface to the user programs.

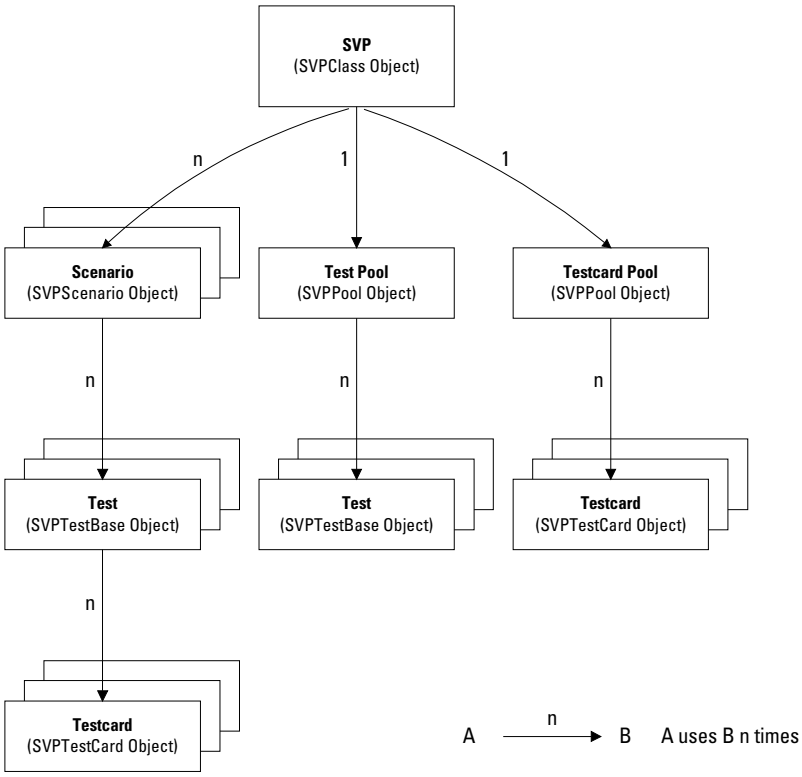


`SVPClass` provides methods for the following purposes:

- Accessing objects for direct modification
- Initialization and file handling
- Test execution
- Reporting

- Creation and deletion of objects

  The objects can be scenarios, tests and testcards. The hierarchy of the objects is shown below.



Characteristic Members

The following tables list all public members of the `SVPClass` class that are recommended for direct use.

Constructor	
public	SVPClass (void)

Destructor	
public virtual ~	SVPClass (void)

Public Methods	
SVPBase *	CreateObject (const BString & name)
SVPSelect	GetSelectionObject (SVPBase * theObject)

Initialization and File Handling	
const char *	CommandLineUsage (void) const
void	CommandLineInit (int argc, char * const argv[])
void	FileLoad (const char * pLoadFileName, bool isOfflineMode=B_TRUE)
void	FileSave (void)
void	FileSaveAs (const char * savefile)
virtual bool	OfflineMode (bool goOffline)

Other Public Methods Overriding SVPBase	
void	Run (void)
void	Stop (void)
void	Check (BErr & errLog)
void	Default (void)
virtual void	RemoveObject (const ESVPObject objectType, const BString & strID)
virtual void	InsertObject (SVPBase * pSvpObject)
virtual ostream &	GetNewLog (ostream & o)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetTestList ( )
virtual const SVPList *	GetCardList ( ) const

Reporting	
virtual ostream &	StaticReport (ostream & o)
time_t	GetTotalDuration (void) const

Inherited Members from SVPThread

The following table lists the members inherited from the `SVPThread` class:

Public Methods	
virtual void	Run (void)
virtual void	Stop (void)

For detailed description of the inherited members, refer to *"SVPThread Class" on page 83*.

Inherited Members from SVPBase

The following tables list the members inherited from the `SVPBase` class:

Various Public Methods	
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual void	ClearLog (void)
virtual const BErr &	GetErr (void) const

For detailed description of the inherited members, refer to *"SVPBase Class" on page 65*.

Check

Include Files

```
#include <svpclass.h>
```

Call

```
public virtual void Check( BErr & errLog );
```

Description Checks if the SVP application has been correctly initialized. This method is called by `Run()` as well.

Return Value No return value.

Output Parameters

errLog Reference to a BErr object. The object contains:

- a list of all error messages that occurred – if the run is not permitted.
- `BErr::OK` – if the run is permitted.

See Also *"Run" on page 26*

CommandLineInit

Include Files

```
#include <svpclass.h>
```

Call

```
void * CommandLineInit(
                    int    argc,
                    char   * const argv[] );
```

Description Passes command line arguments to the `SVPClass` object (as passed from `main()`).

Return Value No return value.

Input Parameters

argc Number of arguments on command line.

argv Array of arguments.

See Also *"CommandLineUsage" on page 19*

CommandLineUsage

Include Files `#include <svpclass.h>`

Call
```
const char * CommandLineUsage( void ) const;
```

Description Returns the string that contains the information for using the command line.

Return Value Pointer to the char array that contains the text string.

See Also *"CommandLineInit" on page 18*

CreateObject

Include Files `#include <svpclass.h>`

Call
```
SVPBase * CreateObject( const ESVPObjectType objectType );
```

Description Creates a new object specified by its type. Use this function to create:

- scenarios (`SVPScenario` objects)
- tests (`SVPTestBase` objects)
- testcards (`SVPPCICard` or `SVPPCIXCard` objects)

`CreateObject` inserts the objects into the corresponding pool. To add tests to a scenario or testcards to a test, use `InsertObject`.

Return Value The return values are:

- Pointer to the new object.
- `NULL` – if object creation was not successful.

Input Parameters **objectType** Type of the object that is created. See *"ESVPObjectType" on page 109*.

See Also *"InsertObject" on page 24*

Example
```
// create a new test object
SVPTestBase * newTest = (SVPTestBase *) svp.CreateObject(T_TEST);
SVPAssert(newTest);
```

Default

Include Files

```
#include <svpclass.h>
```

Call

```
virtual void Default( void );
```

Description Sets this object to default values. That means:

- One empty scenario is configured.
- All available test functions are defined as test objects.
- In online mode, the available testcards found in the system are defined as objects of the type testcard. In offline mode, no testcards will be configured.

Return Value No return value.

See Also –

FileLoad

Include Files

```
#include <svpclass.h>
```

Call

```
void FileLoad(
         const char   * pLoadFileName,
               bool   isOfflineMode = B_FALSE );
```

Description Loads SVP settings from the specific file.

Return Value No return value.

Input Parameters **pLoadFileName** Name of the file from which the settings are to be loaded.

isOfflineMode Forces the offline mode, regardless of whether or not it is specified in the settings file.

See Also *"FileSave" on page 21*
"FileSaveAs" on page 21

FileSave

Include Files `#include <svpclass.h>`

Call `void FileSave( void );`

Description Saves the settings to the file from which the settings were loaded with the `FileLoad` call.

Return Value No return value.

See Also *"FileLoad" on page 20*
"FileSaveAs" on page 21

FileSaveAs

Include Files `#include <svpclass.h>`

Call `void FileSaveAs( const char * savefile );`

Description Saves the SVP settings to the specified file.

Return Value No return value.

Input Parameters **savefile** Name of the file to which the settings are to be saved.

See Also *"FileSave" on page 21*
"FileLoad" on page 20

GetCardList

Include Files

```
#include <svpclass.h>
#include <svplist.h>
```

Call

```
virtual const SVPList * GetCardList() const;
```

Description Returns a pointer to the testcard pool list. This method is used for list enumeration.

Return Value Pointer to the testcard pool list.

See Also *"InsertObject" on page 24*

Example

```
// gets the first testcard in the list
SVPBase * theCard = (*(svp.GetCardList()))[0];
```

GetNewLog

Include Files

```
#include <svpclass.h>
```

Call

```
virtual ostream & GetNewLog( ostream & o );
```

Description Writes to the selected `ostream` object whatever has been added to the report since the last `GetLog` or `GetNewLog` call.

Return Value Reference to the `ostream` object input parameter.

Input Parameters

- **o** `ostream` object. This object can be, for example, `cout`, `cerr`, or an `ofstream` file. To get the pointer to the `ostream` object, use the `GetOStream` call.

See Also *"GetLog" on page 72*
"Log" on page 78
"GetOStream" on page 106

Example

```
while (svp.Status() == SVPBase::S_RUN || svp.Status() ==
       SVPBase::S_WAIT)
{
   // wait for ten seconds
   Sleep (10000);
   // additional test code
   ...
   // writes latest additions to the test report to stdout
   svp.GetNewLog(cout);
}
```

GetSelectionObject

Include Files
```
#include <svpclass.h>
```

Call
```
SVPSelect GetSelectionObject( SVPBase * theObject );
```

Description Creates a `SVPSelect` object for selecting this object's children.

NOTE You must remove the created object when you have finished selecting the object's children.

Return Value The return values are:

- Pointer to the `SVPSelection` object.
- `NULL` – if creation was not successful.

Input Parameters **theObject** Pointer to the object for which the selection takes place.

See Also *"GetID" on page 72*
"SetID" on page 80

GetTestList

Include Files
```
#include <svpclass.h>
#include <svplist.h>
```

Call
```
virtual const SVPList * GetTestList();
```

Description Returns a pointer to the test pool list. This method is used for list enumeration.

Return Value Pointer to the test pool list.

See Also *"InsertObject" on page 24*

Example
```
// gets the first test in the list
SVPBase * theTest = (*(svp.GetTestList()))[0];
```

GetTotalDuration

Include Files `#include <svpclass.h>`

Call `time_t GetTotalDuration( void ) const;`

Description Returns the total duration of the whole testing.

Return Value Total duration as `time_t` value. For more information about `time_t`, see the C-standard library.

See Also –

InsertObject

Include Files `#include <svpclass.h>`

Call `virtual void InsertObject( SVPBase * pSvpObject );`

Description Inserts the specified object into this object's pool. Use this function to insert:

- a test into the test pool
- a testcard into the testcard pool
- a scenario into the SVP object's child list

Return Value No return value.

Input Parameters **pSvpObject** Pointer to an object. The object can be:

- a test (defined by `SVPTestBase`)
  To get the pointer to a specific test, use the `CreateObject` call.
- a testcard (defined by `SVPPCICard or SVPPCIXCard`)
  To get the pointer to a specific testcard, use the `GetCardList` call.

See Also *"CreateObject" on page 19*
"GetCardList" on page 22

Example

```
// assign one testcard to the test (first testcard that was found)
SVPBase * theCard = (*(svp.GetCardList()))[0];
newTest->InsertObject(theCard);
```

OfflineMode

Include Files

```
#include <svpclass.h>
```

Call

```
void OfflineMode(bool goOffline);
```

Description Switches between offline and online mode. The offline mode allows you to configure tests without actually having a testcard plugged into the system under test. The online mode allows you to run tests and to generate a test report.

Return Value No return value.

Input Parameters **goOffline** The values are:

- B_TRUE – offline mode is switched on.
- B_FALSE – offline mode is switched off.

See Also *"Run" on page 26*
"GetLog" on page 72

RemoveObject

Include Files

```
#include <svpclass.h>
#include <bstring.h>
```

Call

```
virtual void RemoveObject(
                    const ESVPObjectType objectType,
                    const BString        & strID );
```

Description Removes an object completely (from pool and all references). The object is specified by its string ID and type.

To get the pointer of the string ID, use the `GetID` call. To set the string ID, use the `SetID` call.

Return Value No return value.

Input Parameters **objectType** Type of the object that is removed; see *"ESVPObjectType" on page 109*.

strID String that identifies the object.

See Also *"GetID" on page 72*
"SetID" on page 80

Run

Include Files `#include <svpclass.h>`

Call `virtual void Run( void );`

Description Runs the SVP testing within a thread.

Return Value No return value.

See Also *"Stop" on page 27*

StaticReport

Include Files `#include <svpclass.h>`

Call `virtual ostream & StaticReport( ostream  & o );`

Description Generates the static report for this object. The static report is generated after the setup has been finished and before any actual testing takes place.

This report gives information about:

- Software

  Version, build number or DLL versions

- System configuration

  Operating system, number of processors, number of busses

- Testcard configuration

  Number of cards, types of cards, firmware version(s), possibly serial numbers to uniquely identify cards

- Test setup and the number of scheduled tests

Return Value Reference to the `ostream` object input parameter.

Input Parameters **o** `ostream` object. The `ostream` object can be, for example, `cout`, `cerr`, or an `ofstream` file.

See Also –

Stop

Include Files `#include <svpclass.h>`

Call `virtual void Stop( void );`

Description Requests a thread and stops it.

Return Value No return value.

See Also *"Run" on page 26*

SVPClass, Constructor

Include Files `#include <svpclass.h>`

Call `public SVPClass( void );`

Description Default constructor.

Initializes this object and allocates a sufficient memory space.

Return Value No return value.

See Also *"SVPClass, Destructor" on page 27*

SVPClass, Destructor

Include Files `#include <svpclass.h>`

Call `public virtual ~SVPClass( void );`

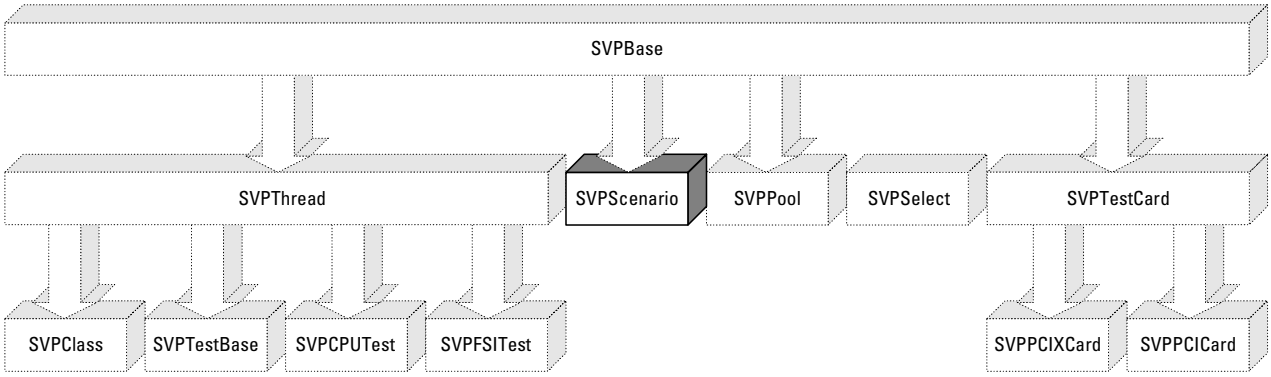
Description Frees the memory space that has been allocated for this object.

Return Value No return value.

See Also *"SVPClass, Constructor" on page 27*

SVPScenario Class

Description The `SVPScenario` class provides the features of a scenario.



Characteristic Members The following tables list all public members of the `SVPScenario` class that are recommended for direct use.

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Public Method	
time_t	GetTotalDuration (void) const

Inherited Members The following tables list the members inherited from the `SVPBase` class.

Various Public Methods	
virtual void	Init (void)
virtual void	Run (void)
virtual void	Stop (void)
virtual void	Check (const BErr & errLog)
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)
virtual void	RemoveObject (const ESVPObjectType objectType, const BString & strID)
virtual void	InsertObject (SVPBase & pSvpObject)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Default Settings	
virtual void	Default (void)

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual ostream &	GetNewLog (ostream & o)
virtual void	ClearLog (void)
virtual ostream &	StaticReport (ostream & o)
virtual const BErr &	GetErr (void) const

For detailed description of the inherited members, refer to *"SVPBase Class" on page 65*.

GetTotalDuration

Include Files `#include <svpscena.h>`

Call `time_t GetTotalDuration( void ) const;`

Description Returns the total duration of testing for the specified scenario. The total duration of a scenario is the maximum period of time that results from the sum of start delay and test duration.

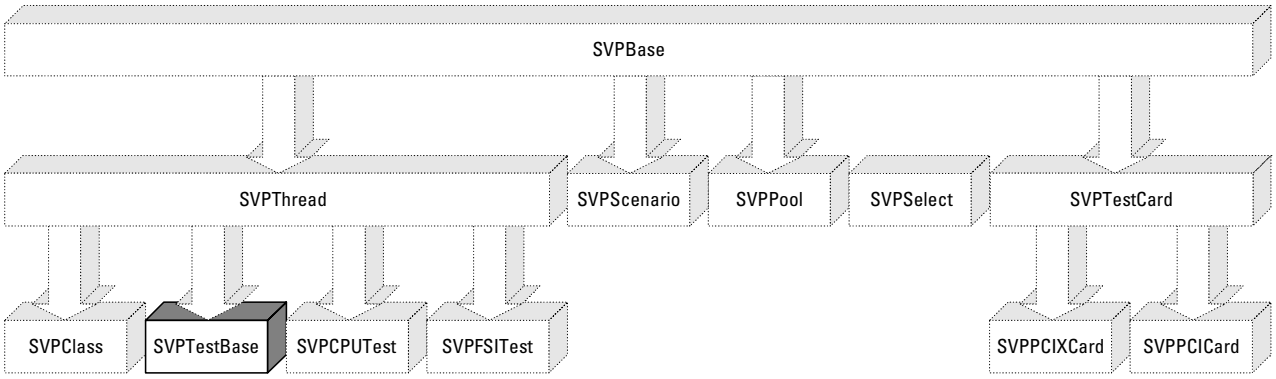
Return Value Total duration as `time_t` value. For reference to `time_t`, see the C-standard library.

See Also –

SVPTestBase Class

Description

The `SVPTestBase` class provides all testing functionality of the SVP application. The most useful methods are overrides from `SVPBase` and `SVPThread`, and provide the same functionality.



Characteristic Members

The following tables list all public members of the `SVPTestBase` class that are recommended for direct use.

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Public Method	
time_t	GetTotalDuration (void) const

Inherited Members from SVPThread

The following table lists the members inherited from the `SVPThread` class.

Public Methods	
virtual void	Run (void)
virtual void	Stop (void)

For detailed description of these inherited members, refer to *"SVPThread Class" on page 83*.

Inherited Members from SVPBase

The following tables list the members inherited from the `SVPBase` class.

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Various Public Methods	
virtual void	Init (void)
virtual void	Check (const BErr & errLog)
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)
virtual void	RemoveObject (const ESVPObjectType objectType, const BString & strID)
virtual void	InsertObject (SVPBase & pSvpObject)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Default Settings	
virtual void	Default (void)

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual ostream &	GetNewLog (ostream & o)
virtual void	ClearLog (void)
virtual ostream &	StaticReport (ostream & o)
virtual const BErr &	GetErr (void) const

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

For detailed description of these inherited members, refer to *"SVPBase Class" on page 65*.

GetTotalDuration

Include Files `#include <testbase.h>`

Call `time_t GetTotalDuration( void ) const;`

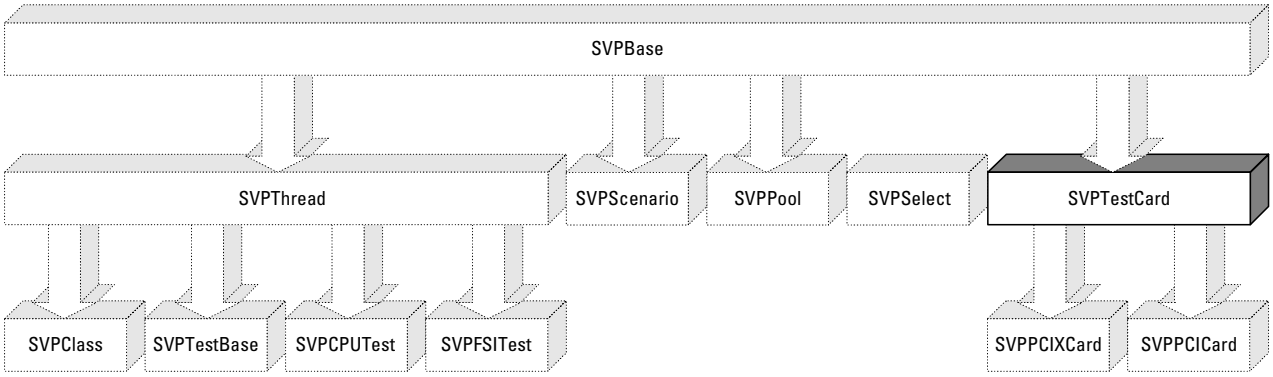
Description Returns the total duration of the specified test. The total duration of a test is the sum of start delay and test duration.

Return Value Total duration as `time_t` value. For reference to `time_t`, see the C-standard library.

See Also –

SVPTestCard Class

Description The `SVPTestCard` class includes the members of the `SVPBase` class.



Characteristic Members The following tables list all public members of the `SVPTestCard` class that are recommended for direct use.

Defined Operator	
public virtual bool	operator == (const SVPBase & other) const

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Default Settings	
virtual void	Default (void)
virtual void	ResetFactoryDefault (void)
virtual const BString	Ping (void)

Reporting	
virtual ostream &	StaticReport (ostream & o)

Public Methods Overriding Base Class's Methods	
void	Run (void)
void	Stop (void)

Various Public Methods	
virtual bool	CheckPPR (DWORD fmFlags, BString * pprReport)
virtual void	BandwidthSet (double theBandwidth)
virtual ECardType	CardType (void) const
virtual const BLocation &	GetLocation (void)
virtual DWORD	GetSystemID (void)
virtual bool	GetAddress (BAddress::EAddressSpace space, int isPrefetch, BAddress & address)
virtual void	AllocateBuffer (BAddress & Address

Testcard Setup Methods	
virtual void	MasterWRCSetup (const BAddress & address)
virtual void	MasterReadSetup (const BAddress & address)
virtual void	MasterWriteSetup (const BAddress & address)
virtual const BString	ConfigScan (void)
virtual void	CPUTargetSetup (const BAddress::EAddressSpace space, int prefetch, LPRUN_FCT runFct)
virtual void	ObserverTestSetup (void)

Protocol Rules	
virtual DWORD	GetRuleCount (void) const
virtual const SSvpPropRule	GetRule (DWORD dwIndex) const
virtual const BString	GetRuleDescription (DWORD dwIndex) const
virtual void	SetRule (DWORD dwIndex, bool bState)

Static Members	
static ECardType	CardTypeFromString (const BString & cardStr)
static SVPTestCard *	New (SVPBase * parent., const BString & modelStr="E2928A")

Inherited Members The following tables list the members inherited from the `SVPBase` class.

Various Public Methods	
virtual void	Init (void)
virtual void	Run (void)
virtual void	Stop (void)
virtual void	Check (const BErr & errLog)
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)
virtual void	RemoveObject (const ESVPObjectType objectType, const BString & strID)
virtual void	InsertObject (SVPBase & pSvpObject)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual ostream &	GetNewLog (ostream & o)
virtual void	ClearLog (void)
virtual const BErr &	GetErr (void) const

For detailed description of the inherited members, refer to *"SVPBase Class" on page 65*.

AllocateBuffer

Include Files `#include <testcard.h>`

Call `virtual void AllocateBuffer( BAddress & address );`

Description Allocates buffer on the system under test for this `testcard` object.

Return Value No return value.

Output Parameters **address** Reference to the `BAddress` object.

See Also –

Example

```
DWORD size = 1024; // must be power of two
const BAddress & address = theCard->AllocateBuffer(size);
```

BandwidthSet

Include Files `#include <testcard.h>`

Call `virtual void BandwidthSet (double theBandwidth);`

Description Sets the bus bandwidth that is to be occupied by the test in percent. The test tries to occupy the bus with this bandwidth. Please be aware that the selected bus bandwidth cannot always be achieved.

Return Value No return value.

Input Parameters **theBandwidth** Desired value for the bandwidth. Valid values are in the range of `0.0` … `1.0`, where `1.0` means 100%.

See Also –

CardType

Include Files `#include <testcard.h>`

Call `virtual ECardType CardType( void ) const;`

Description Returns the type of the testcard.

Return Value Type of the card; see *"ECardType" on page 108*.

See Also *"CardTypeFromString" on page 41*

CardTypeFromString

Include Files
```
#include <bstring.h>
#include <testcard.h>
```

Call `virtual ECardType CardTypeFromString( const BString & cardStr );`

Description Returns the type of the testcard, according to the model number.

Return Value Type of the card; see *"ECardType" on page 108*.

Input Parameters **cardStr** String that contains the model number. Valid strings are:

- "E2925B"
- "E2926A"
- "E2926B"
- "E2927A"
- "E2928A"
- "E2940A"
- "E2929A"
- "E2922A"

See Also *"New" on page 53*
"CardType" on page 41

CheckPPR

Include Files

```
#include <testcard.h>
```

Call

```
virtual bool CheckPPR(
        DWORD      mFlags;
        BString    * pprReport);
```

Description

Checks the PPR software and generates a report.

Return Value

The return values are:

- B_TRUE – if no errors occurred.
- B_FALSE – if an error occurred.

Input Parameters

mFlags Flag mask that indicates which report is to be generated. Relevant bits are:

- fm_USE_MASTER – if the testcard is using the master.
- fm_USE_TARGET – if the testcard is using the target.

Output Parameters

pprReport Report as a string.

See Also

–

Example

```
BString reportStr;
DWORD mFlags = fm_USE_MASTER | fm_USE_TARGET;

// report message
if (testCard->CheckPPR(mFlags, &reportStr) == B_TRUE)
{
   cout << "Check OK:" << (const char *)reportStr << endl;
}
else
{
   cerr << "Check failed:" << (const char *)reportStr << endl;
}
```

ConfigScan

Include Files

```
#include <bstring.h>
#include <testcard.h>
```

Call

```
virtual const BString ConfigScan( void );
```

Description Scans the whole configuration space of the PCI-X bus system.

Return Value The results of the configuration space scan as a string.

See Also

"MasterReadSetup" on page 50
"MasterWRCSetup" on page 51
"MasterWriteSetup" on page 52
"CPUTargetSetup" on page 44
"ObserverTestSetup" on page 54

CPUTargetSetup

Include Files

```
#include <testcard.h>
```

Call

```
virtual void CPUTargetSetup(
        const BAddress::EAddressSpace   & space,
              int                       prefetch,
              LPRUN_FCT                 runFct;
```

Description Sets up the target and the CPU test. You need this method also to set up the FSI test.

Return Value No return value.

Input Parameters

space Address space. See *"EAddressSpace" on page 107*.

prefetch Valid values are:

0	Use decoder that has prefetch "on".
-1	Use decoder that has prefetch "off" (don't care).

runFct Pointer to the run function for internal testing. The run function is a part of the `STestFct` structure. See the example.

See Also

"GetAddress" on page 46
"MasterReadSetup" on page 50
"MasterWRCSetup" on page 51
"MasterWriteSetup" on page 52
"ConfigScan" on page 43
"ObserverTestSetup" on page 54

Example

```
// The following struct contains the actual test definitions
   including the run function
STestFct g_customFct =
{
   "Custom Memory Read", // descriptive name
   "custommemread", // short name
   custommemread_init, // init function
   custommemread_run, // run function
   0, // no stop function
   1, 1, // one card only
   "Reads from main memory and does other custom testing", // long
   description
   tpf_FULL_ADDRESS | tpf_BANDWIDTH // test flags
};
```

For a detailed example of a custom test function, refer to *"Custom Test Function" on page 126*.

Default

Include Files

```
#include <testcard.h>
```

Call

```
virtual void Default( void );
```

Description

Sets all properties of this testcard object to default values.

See Also

"GetProp" on page 75
"ResetFactoryDefault" on page 55
"Ping" on page 55

Example

```
SVPTestCard card;
…
// Sets all properties of the testcard object to default values
card.Default();
```

GetAddress

Include Files

```
#include <testcard.h>
```

Call

```
virtual int GetAddress(
                BAddress::EAddressSpace   space,
                bool                      isPrefetch,
                BAddress                  & address);
```

Description

Gets the base address of the desired address space. For the address space, you can select between configuration space, memory space and I/O space. The obtained base address can be used as input parameter in the following methods:

- `MasterWRCSetup`
- `MasterReadSetup`
- `MasterWriteSetup`

Return Value

The return values are:

0 … 5	BAR 0 … 5
-1	no BAR is found

Input Parameters

space Address space. See *"EAddressSpace" on page 107*.

isPrefetch The valid values are:

-1	don't care
0	no
1	yes

Output Parameters

address Reference to the `BAddress` object that contains the base address.

See Also

"MasterReadSetup" on page 50
"MasterWRCSetup" on page 51
"MasterWriteSetup" on page 52

Example

```
BAddress::EAddressSpace space = BAddress::SPACE_MEM;

int prefetch = -1;

BAddress address;

// get address of second card to program first one
secondCard->GetAddress(space, prefetch, address);

// setup test for first card
firstCard->MasterWRCSetup(address);
```

GetLocation

Include Files `#include <testcard.h>`

Call `virtual const BLocation & GetLocation( void );`

Description Gets the location of this testcard object in the system under test. For external connections, FSI is needed.

Return Value `BLocation` object with bus number, device number and function number of this testcard object.

See Also –

GetRule

Include Files `#include <testcard.h>`

Call `virtual const SSvpProtRule GetRule( DWORD dwIndex ) const;`

Description Gets the rule with the specified index.

Return Value `SsvpProtRule` object with name and state.

Input Parameters **dwIndex** Index of the rule.

See Also *"GetRuleDescription" on page 48*
"GetRuleCount" on page 48
"SetRule" on page 56

GetRuleCount

Include Files `#include <testcard.h>`

Call `virtual DWORD GetRuleCount( void ) const;`

Description Returns the number of rules that are observed by this testcard object.

Return Value Number of rules as DWORD.

See Also *"GetRule" on page 47*
"GetRuleDescription" on page 48
"SetRule" on page 56

GetRuleDescription

Include Files `#include <testcard.h>`

Call `virtual const BString GetRuleDescription( DWORD dwIndex ) const;`

Description Gets a detailed description of the rule with the specified index.

Return Value String that contains the description of the rule.

Input Parameters **dwIndex** Index of the rule.

See Also *"GetRule" on page 47*
"GetRuleCount" on page 48
"SetRule" on page 56

GetSystemID

Include Files `#include <testcard.h>`

Call `virtual DWORD GetSystemID( void );`

Description Gets the unique system ID.

Return Value System ID. The values are:

0	Unknown
1	Controlling host
A unique random number	All other systems that are controlled by FSI

See Also –

MasterReadSetup

Include Files

```
#include <testcard.h>
```

Call

```
virtual void MasterReadSetup( const BAddress & address );
```

Description

Sets up a *Read* test.

When you want to access this testcard from another testcard or from the CPU, you can use the `GetAddress` call to define its address and to get the reference to the defined `BAddress` object.

Return Value

No return value.

Input Parameters

address `BAddress` object that defines the address, the size of the address space and the kind of address space (mem or I/O). See *"GetAddress" on page 46*.

See Also

"MasterWRCSetup" on page 51
"MasterWriteSetup" on page 52
"ConfigScan" on page 43
"CPUTargetSetup" on page 44
"ObserverTestSetup" on page 54
"GetAddress" on page 46

Example

```
BAddress address (0xb8000, 0x0, BAddress::SPACE_MEM, 1024);
// part of video memory

theCard->MasterReadSetup(address);
// read from the specified address
```

MasterWRCSetup

Include Files

```
#include <testcard.h>
```

Call

```
public virtual void MasterWRCSetup( const BAddress & address );
```

Description

Sets up a *Write*, *Read* and *Compare* test.

When you want to access this testcard from another testcard or from the CPU, you can use the `GetAddress` call to define its address and to get the reference to the defined `BAddress` object.

Return Value

No return value.

Input Parameters

address `BAddress` object that defines the address, the size of the address space and the kind of address space (mem or I/O). See *"GetAddress" on page 46*.

See Also

"MasterReadSetup" on page 50
"MasterWriteSetup" on page 52
"ConfigScan" on page 43
"CPUTargetSetup" on page 44
"ObserverTestSetup" on page 54
"GetAddress" on page 46

Example

```
BAddress address (0xb8000, 0x0, BAddress::SPACE_MEM, 1024);
// part of video memory

theCard->MasterWRCSetup(address);
// write/read/compare from the specified address
```

MasterWriteSetup

Include Files

```
#include <testcard.h>
```

Call

```
public virtual void MasterWriteSetup( const BAddress & address );
```

Description

Sets up a *Write* test.

When you want to access this testcard from another testcard or from the CPU, you can use the `GetAddress` call to define its address and to get the reference to the defined `BAddress` object.

Return Value

No return value.

Input Parameters

address `BAddress` object that defines the address, the size of the address space and the kind of address space (mem or I/O). See *"GetAddress" on page 46*.

See Also

"MasterReadSetup" on page 50
"MasterWRCSetup" on page 51
"ConfigScan" on page 43
"CPUTargetSetup" on page 44
"ObserverTestSetup" on page 54
"GetAddress" on page 46

Example

```
BAddress address (0xb8000, 0x0, BAddress::SPACE_MEM, 1024);
// part of video memory

theCard->MasterWriteSetup(address);
// write to the specified address
```

New

Include Files

```
#include <testcard.h>
```

Call

```
static SVPTestCard * New(
                SVPBase   * parent,
          const BString   & modelStr = "E2928A");
```

Description

Defines a new testcard object, which is specified by the parent object and the model number.

`New` is only used in **offline** mode to create a testcard of a specific type. In **online** mode, `New` is not needed: testcards are created by the `SVPClass` object.

NOTE

To insert the testcard into the pool, you MUST use `SVPClass::InsertObject`.

Return Value

Pointer to the new testcard object.

Input Parameters

parent Pointer to the parent object.

modelStr String that contains the model number. Valid strings are:

- "E2925B"
- "E2926A"
- "E2926B"
- "E2927A"
- "E2928A"
- "E2940A"
- "E2929A"
- "E2922A"

See Also

"CardTypeFromString" on page 41

ObserverTestSetup

Include Files

```
#include <testcard.h>
```

Call

```
virtual void ObserverTestSetup( void );
```

Description Sets up this testcard object for an observer-only test. That means that master and target are not used.

Return Value No return value.

See Also

"MasterReadSetup" on page 50
"MasterWRCSetup" on page 51
"MasterWriteSetup" on page 52
"ConfigScan" on page 43
"CPUTargetSetup" on page 44

Operator ==

Include Files

```
#include <testcard.h>
```

Call

```
virtual bool operator == ( const SVPBase & other ) const;
```

Description Checks if two testcard objects refer to the same testcard. For example, this method can be used to check if one testcard object is connected to two ports.

Return Value The return values are:

- B_TRUE – if the testcard objects refer to the same testcard.
- B_FALSE – if the testcard objects refer to different testcards.

Input Parameter **other** Reference to the second testcard.

See Also –

Example

```
if (firstCard == secondCard)
{
   // if firstCard and secondCard are identical (connected by
      different ports, maybe), peer-to-peer testing is not possible
}
else
{
   myPeertoPeer(firstCard, secondCard);
}
```

Ping

Include Files

```
#include <bstring.h>
#include <testcard.h>
```

Call

```
virtual void BString Ping( void );
```

Description Checks the connection to this testcard object. The green and the red LEDs on the card flash. An error message will report any connection errors.

Return Value The method returns:

- An empty string – if the testcard connection is correct.
- An error message – if connection errors occurred.

See Also *"Default" on page 45*
"ResetFactoryDefault" on page 55

ResetFactoryDefault

Include Files

```
#include <testcard.h>
```

Call

```
virtual void ResetFactoryDefault( void );
```

Description Resets testcard settings for this testcard object to default values. For the changes to become effective, you must reboot the testcard.

Return Value No return value.

See Also *"Default" on page 45*
"Ping" on page 55

Run

Include Files

```
#include <testcard.h>
```

Call

```
public virtual void Run( void );
```

Description Runs this object. The object can be the entire SVP application, a scenario or a test. This method also checks if a test or a testcard has been locked. If the object has been locked, an error is thrown.

Before you use this function, call `PrepareRun` to verify the settings.

NOTE For running single tests and scenarios, use `UpdateStatus` to query the current object status.

Return Value No return value.

See Also *"Stop" on page 58*

SetRule

Include Files

```
#include <testcard.h>
```

Call

```
virtual void SetRule(
            DWORD   dwIndex,
            bool    bState );
```

Description Enables or disables the rule with the specified index.

Return Value No return value.

Input Parameters

dwIndex Index of the rule.

bState The values are:

- B_TRUE – the rule is disabled.
- B_FALSE – the rule is enabled.

See Also *"GetRuleDescription" on page 48*
"GetRule" on page 47
"GetRuleCount" on page 48

StaticReport

Include Files

```
#include <testcard.h>
```

Call

```
public virtual ostream StaticReport( ostream & o );
```

Description

Generates the static report for this object. This method overrides the `SVPBase` class `StaticReport` method.

The static report is generated after the setup has been finished and before any actual testing takes place.

This report gives information about:

- Software

  Version, build number or DLL versions

- System configuration

  Operating system, number of processors, number of busses

- Testcard configuration

  Number of cards, types of cards, firmware version(s), possibly serial numbers to uniquely identify cards

- Test setup and the number of scheduled tests

Return Value

Reference to the `ostream` object input parameter.

Input Parameters

o `ostream` object. The `ostream` object can be, for example, `cout`, `cerr`, or an `ofstream` file.

See Also

–

Stop

Include Files `#include <testcard.h>`

Call `virtual void Stop( void );`

Description Stops this running object. The object can be the entire SVP application, a scenario or a test.

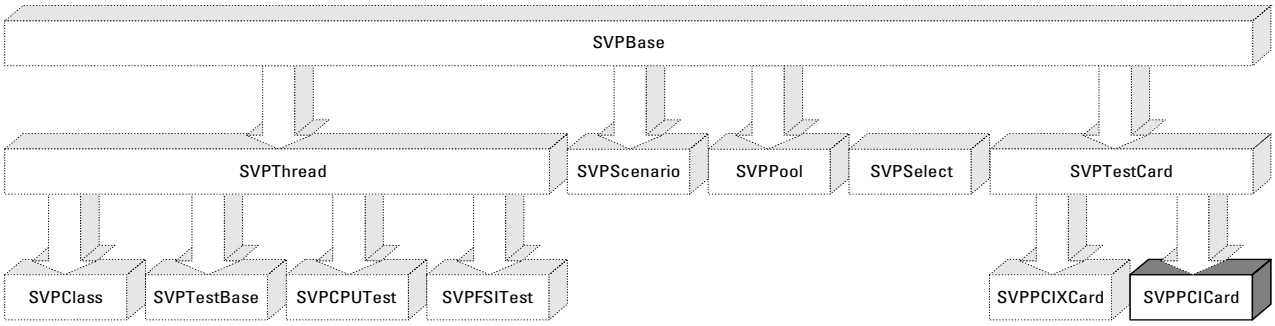
Return Value No return value.

See Also *"Run" on page 56*

SVPPCICard Class

Description The `SVPPCICard` class is used for PCI series cards and provides all functionality of the `SVPTestCard` class. The following testcards are supported:

- E2925B
- E2926A/B
- E2927A
- E2928A
- E2940A CompactPCI



Characteristic Members This class contains no additional members that can be directly called by the user.

Inherited Members `The SVPPCICard` class includes the members of the `SVPTestCard` class. The following tables list the members inherited from the `SVPTestCard` class.

Defined Operator	
public virtual bool	operator == (const SVPBase & other) const

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Default Settings	
virtual void	Default (void)
virtual void	ResetFactoryDefault (void)
virtual const BString	Ping (void)

Reporting	
virtual ostream &	StaticReport (ostream & o)

Public Methods Overriding Base Class's Methods	
void	Run (void)
void	Stop (void)

Various Public Methods	
virtual bool	CheckPPR (DWORD fmFlags, BString * pprReport)
virtual void	BandwidthSet (double theBandwidth)
virtual ECardType	CardType (void) const
virtual const BLocation &	GetLocation (void)
virtual DWORD	GetSystemID (void)
virtual bool	GetAddress (BAddress::EAddressSpace space, int isPrefetch, BAddress & address)
virtual void	AllocateBuffer (BAddress & Address

Testcard Setup Methods	
virtual void	MasterWRCSetup (const BAddress & address)
virtual void	MasterReadSetup (const BAddress & address)
virtual void	MasterWriteSetup (const BAddress & address)
virtual const BString	ConfigScan (void)
virtual void	CPUTargetSetup (const BAddress::EAddressSpace space, int prefetch, LPRUN_FCT runFct)
virtual void	ObserverTestSetup (void)

Protocol Rules	
virtual DWORD	GetRuleCount (void) const
virtual const SSvpPropRule	GetRule (DWORD dwIndex) const
virtual const BString	GetRuleDescription (DWORD dwIndex) const
virtual void	SetRule (DWORD dwIndex, bool bState)

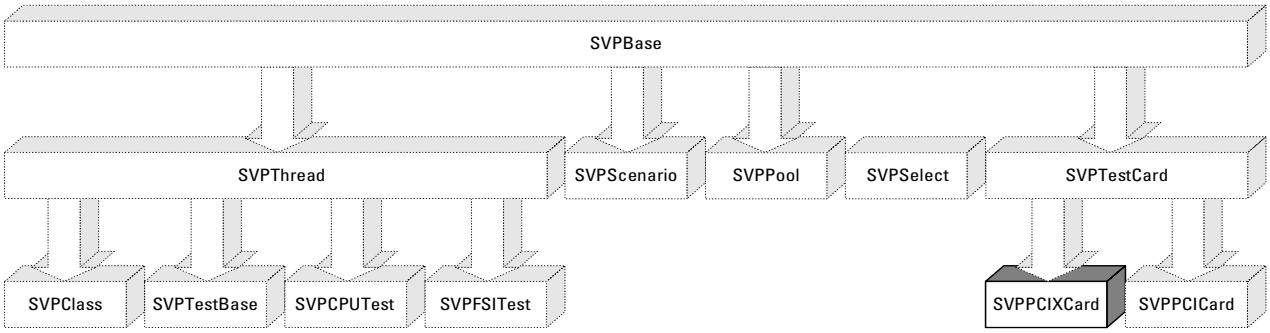
Static Members	
static ECardType	CardTypeFromString (const BString & cardStr)
static SVPTestCard *	New (SVPBase * parent., const BString & modelStr="E2928A")

For detailed description of the inherited members, refer to *"SVPTestCard Class" on page 36*.

SVPPCIXCard Class

Description The `SVPPCICard` class is used for PCI-X series cards and provides all functionality of the `SVPTestCard` class. The following testcards are supported:

- E2929A
- E2922A



Characteristic Members This class contains no additional members that can be directly called by the user.

Inherited Members `The SVPPCIXCard` class includes the members of the `SVPTestCard` class. The following tables list the members inherited from the `SVPTestCard` class.

Defined Operator	
public virtual bool	operator == (const SVPBase & other) const

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Default Settings	
virtual void	Default (void)
virtual void	ResetFactoryDefault (void)
virtual const BString	Ping (void)

Reporting	
virtual ostream &	StaticReport (ostream & o)

Public Methods Overriding Base Class's Methods	
void	Run (void)
void	Stop (void)

Various Public Methods	
virtual bool	CheckPPR (DWORD fmFlags, BString * pprReport)
virtual void	BandwidthSet (double theBandwidth)
virtual ECardType	CardType (void) const
virtual const BLocation &	GetLocation (void)
virtual DWORD	GetSystemID (void)
virtual bool	GetAddress (BAddress::EAddressSpace space, int isPrefetch, BAddress & address)
virtual void	AllocateBuffer (BAddress & Address

Testcard Setup Methods	
virtual void	MasterWRCSetup (const BAddress & address)
virtual void	MasterReadSetup (const BAddress & address)
virtual void	MasterWriteSetup (const BAddress & address)
virtual const BString	ConfigScan (void)
virtual void	CPUTargetSetup (const BAddress::EAddressSpace space, int prefetch, LPRUN_FCT runFct)
virtual void	ObserverTestSetup (void)

Protocol Rules	
virtual DWORD	GetRuleCount (void) const
virtual const SSvpPropRule	GetRule (DWORD dwIndex) const
virtual const BString	GetRuleDescription (DWORD dwIndex) const
virtual void	SetRule (DWORD dwIndex, bool bState)

Static Members	
static ECardType	CardTypeFromString (const BString & cardStr)
static SVPTestCard *	New (SVPBase * parent., const BString & modelStr="E2928A")

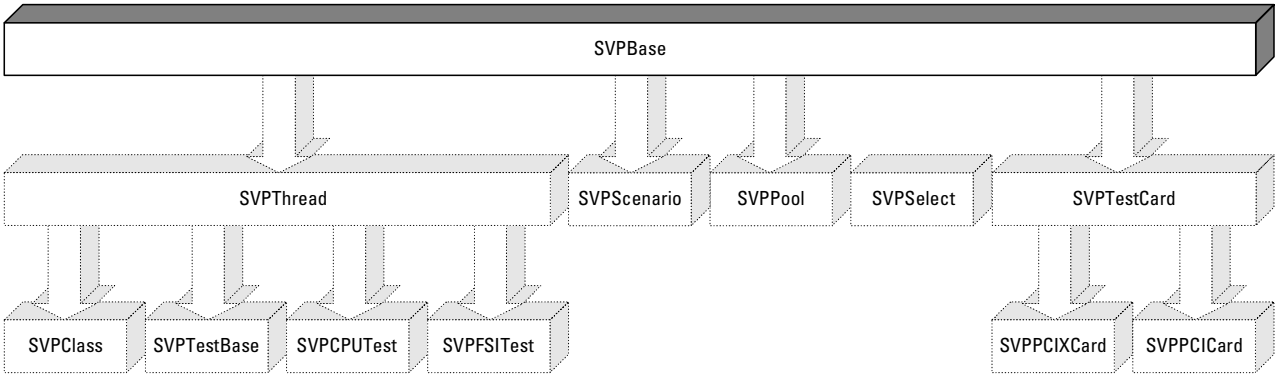
For detailed description of the inherited members, refer to *"SVPTestCard Class" on page 36*.

SVPBase Class

Description `SVPBase` is the base class for all SVP objects. This class includes fundamental features and provides a standard means for accessing objects. Objects can be:

- the whole SVP application (`SVPClass`)
- a scenario (`SVPScenario`)
- a test (`SVPTestBase`)
- a testcard (`SVPTestCard`)

NOTE `SVPBase` objects must not be created directly. `SVPClass` creates and deletes objects.



Characteristic Members The following tables list all public members of the `SVPBase` class that are recommended for direct use.

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Various Public Methods	
virtual void	Init (void)
virtual void	Run (void)
virtual void	Stop (void)
virtual void	Check (const BErr & errLog)
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)
virtual void	RemoveObject (const ESVPObjectType objectType, const BString & strID)
virtual void	InsertObject (SVPBase & pSvpObject)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Default Settings	
virtual void	Default (void)

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual ostream &	GetNewLog (ostream & o)
virtual void	ClearLog (void)
virtual ostream &	StaticReport (ostream & o)
virtual const BErr &	GetErr (void) const

Check

Include Files

```
#include <svpbase.h>
```

Call

```
public virtual void Check( BErr & errLog );
```

Description

Checks if an object has been correctly initialized. The object can be:

- the whole SVP application (`SVPClass` object)
- a scenario (`SVPScenario` object)
- a test (`SVPTestBase` object)
- a testcard (`SVPPCICard` or `SVPPCIXCard` object)

Return Value

No return value.

Output Parameters

errLog Reference to an BErr object that contains all error messages that occurred when checking the initialization of the regarding object. If initialization is correct, it contains `BErr::OK`.

See Also

–

Example

```
BErr errLog;
theObject->Check(errLog);
if (errLog)
{
   cerr << "Error checking object: " << errLog << endl;
}
```

CheckProp

Include Files

```
#include <bstring.h>
#include <svpbase.h>
```

Call

```
public virtual bool CheckProp( const BString & key ) const;
```

Description

Returns the status of a boolean property.

Return Value

The return values are:

- B_TRUE – if the property has been activated.
- B_FALSE – if the property has not been activated.

Input Parameters

key Specifies the boolean property to be checked, such as `"use.master"`, which determines if the master of the testcard is used. For the available properties, see *"Setup File Reference" on page 111*.

See Also

"GetProp" on page 75

Example

```
int prefetch;

if (svpTest->CheckProp("address.prefetch"))
{
   prefetch =
   (bool)(svpTest->GetProp(pAddressPrefetch)) == B_TRUE ? 1 : 0;
}
else
{
   prefetch = -1;
}
```

ClearLog

Include Files `#include <svpbase.h>`

Call `virtual void ClearLog( void );`

Description Clears the log (test report) of the entire SVP application.

See Also *"GetLog" on page 72*
"Log" on page 78
"GetNewLog" on page 74

Default

Include Files `#include <svpbase.h>`

Call `virtual void Default( void );`

Description Sets all properties of an object to default values. The object can be:

- the whole SVP application (defined by `SVPClass`)
- a scenario (defined by `SVPScenario`)
- a test (defined by `SVPTestBase`)
- a testcard (defined by `SVPPCICard` or `SVPPCIXCard`)

See Also *"GetProp" on page 75*

Example

```
SVPClass svp;
…
// Sets all properties of the SVP application object to default
   values
svp.Default();
```

GetChildList

Include Files

```
#include <svpbase.h>
#include <svplist.h>
```

Call

```
virtual const SVPList * GetChildList( void ) const;
```

Description Returns a pointer to an object's child list.

Return Value The return values are:

- Pointer to the object's child list.
- `NULL` – if no pointer is available.

See Also *"RemoveObject" on page 79*

Example

```
SVPScenario * theSc;
SVPTestBase * theTest;

// get pointer to first scenario
theSc = (SVPScenario *) (*svp.GetChildList())[0];

// get pointer to first test
theTest = (SVPTestBase *) svp.GetTestList()[0];

// insert test into scenario
theSc.InsertObject (theTest);
```

GetErr

Include Files

```
#include <svpbase.h>
```

Call

```
virtual const BErr & GetErr( void ) const;
```

Description Returns the latest error that occurred during the SVP application.

Return Value Reference to the error object that contains the latest error.

See Also –

GetID

Include Files
```
#include <bstring.h>
#include <svpbase.h>
```

Call
```
virtual const BString & GetID( void ) const;
```

Description Returns the user-defined name of the regarding object.

Return Value Name of the object.

See Also *"SetID" on page 80*

GetLog

Include Files
```
#include <svpbase.h>
```

Call
```
virtual ostream & GetLog( ostream & o );
```

Description Writes the log (test report) of this object to the specified `ostream` object.

Return Value Reference to the `ostream` object input parameter.

Input Parameters

- **o** `ostream` object. This object can be, for example, `cout`, `cerr`, or an `ofstream` file. To get the pointer to the `ostream` object, use the `GetOStream` call.

See Also *"Log" on page 78*
"GetNewLog" on page 74
"GetOStream" on page 106

Example
```
// print log (test report) to std out
svp.GetLog(cout);
```

GetNameByObjectType

Include Files

```
#include <bstring.h>
#include <svpbase.h>
```

Call

```
static const BString GetNameByObjectType(
                     const ESVPObjectType objectType);
```

Description Reads the name that identifies the object with the specified object type. For example, if you select the object type T_TESTCARD, “Testcard” will be read.

Return Value Name of the object.

Input Parameters **objectType** Type of the object of which the name is read; see *“ESVPObjectType” on page 109*.

See Also *“GetObjectTypeByName” on page 74*

Example

```
SVPBase * theObject;

// assign valid object to theObject...
// ...

BString theString = SVPBase::GetNameByObjectType( theObject);

cout << "Object is a " << theString << endl;
```

GetNewLog

Include Files

```
#include <svpbase.h>
```

Call

```
virtual ostream & GetNewLog( ostream & o );
```

Description Writes an additional log (test report) of an object to the selected `ostream` object.

Return Value Reference to the `ostream` object input parameter.

Input Parameters **o** `ostream` object. This object can be, for example, `cout`, `cerr`, or an ofstream file. To get the pointer to the `ostream` object, use the `GetOStream` call.

See Also
"GetLog" on page 72
"Log" on page 78
"GetOStream" on page 106

Example

```
while (svp.Status() == SVPBase::S_RUN || svp.Status() ==
SVPBase::S_WAIT)
{
   ...
   // report additions to test report to stdout
   svp.GetNewLog(cout);
}
```

GetObjectTypeByName

Include Files

```
#include <bstring.h>
#include <svpbase.h>
```

Call

```
static const ESVPObjectType GetObjectTypeByName(
                                          const BString & name );
```

Description Returns the object type for the selected name.

Return Value Object type; see *"ESVPObjectType" on page 109*.

Input Parameters **name** Name of the object.

See Also
"GetNameByObjectType" on page 73

GetObjectType

Include Files
```
#include <svpbase.h>
```

Call
```
virtual const ESVPObjectType GetObjectType( void );
```

Description Returns the type of an object.

Return Value Object type; see *"ESVPObjectType" on page 109*.

See Also *"GetObjectTypeByName" on page 74*

GetProp

Include Files
```
#include <bstring.h>
#include <svpbase.h>
```

Call
```
virtual CPropEl & GetProp( const BString & key );
```

Description Used to access a property by its name. You can then set this property to the desired value. For properties and values, see *"Setup File Reference" on page 111*.

Return Value Reference to an `CPropEl` object. The class `CPropEl` is needed to assign different types of values (for example, integer, string or boolean) to the same class.

Input Parameters **key** String that specifies the property. For all available properties, see *"Setup File Reference" on page 111*.

See Also *"CheckProp" on page 69*

Example
```
// set the test duration to 120 seconds
newTest->GetProp("duration") = 120UL;
// set the address property of the test
newTest->GetProp("address") = testAddress;
```

Init

Include Files `#include <svpbase.h>`

Call `public virtual void Init( void );`

Description Initializes an object. The object can be:

- the whole SVP application (`SVPClass`)
- a scenario (`SVPScenario`)
- a test (`SVPTestBase`)
- a testcard (`SVPPCICard and SVPPCIXCard`)

Return Value No return value.

See Also –

InsertObject

Include Files

```
#include <svpbase.h>
```

Call

```
virtual void InsertObject( SVPBase * pSvpObject );
```

Description

Inserts an object into an object's child list and increments its reference count. You can use this function to insert:

- a test into a scenario
- a testcard into a test

To insert a scenario into the SVP application object, use `CreateObject(T_SCENARIO)`.

Return Value

No return value.

Input Parameters

pSvpObject Pointer to an object. The object can be:

- a test (defined by `SVPTestBase`)

  To get the pointer to a specific test, use the `SVPClass::GetTestList()` call.

- a testcard (defined by `SVPPCICard or SVPPCIXCard`)

  To get the pointer to a specific testcard, use the `SVPClass::GetCardList()` call.

See Also

"CreateObject" on page 19
"GetCardList" on page 22

Example

```
// assign testcard to a new test (the first testcard that has been
scanned is used)
SVPBase * theCard = (*(svp.GetCardList()))[0];
newTest->InsertObject(theCard);
```

Log

Include Files
```
#include <svpbase.h>
```

Call
```
virtual BLog & Log( void );
```

Description Gets reference to `m_log`. `m_log` is a `BLog` object that records the test report. (Each `SVPBase` object owns a `BLog` object for reporting.) See *"BLog" on page 105*.

Return Value Reference to `m_log`.

See Also *"GetLog" on page 72*
"GetNewLog" on page 74

Name

Include Files
```
#include <bstring.h>
#include <svpbase.h>
```

Call
```
virtual const BString Name( void ) const;
```

Description Reads the name of an object.

Return Value Name of the object.

See Also *"GetNameByObjectType" on page 73*

PrepareRun

Include Files
```
#include <svpbase.h>
```

Call
```
virtual void PrepareRun( void );
```

Description Prepares this object for running. This method verifies the settings of the object that is to be run.

Return Value No return value.

See Also *"Run" on page 80*

RemoveObject

Include Files

```
#include <bstring.h>
#include <svpbase.h>
```

Call

```
virtual void RemoveObject(
                    const ESVPObjectType objectType,
                    const BString        & strID );
```

Description

Removes a child from the object's child list. The child object is specified by its string ID and type.

You can query the string ID of an object with the `GetID` call. The `RemoveObject` call decrements the reference count of the object by one.

Return Value

No return value.

Input Parameters

objectType Type of the object that is removed; see *"ESVPObjectType" on page 109*.

strID String that identifies the object.

See Also

"GetChildList" on page 71
"GetID" on page 72
"SetID" on page 80

Example

```
// remove second testcard from test:
SVPTestCard * theCard = (*theTest->GetChildList())[1];
theTest->RemoveObject(T_TESTCARD, theCard->GetID());
```

Run

Include Files

```
#include <svpbase.h>
```

Call

```
public virtual void Run( void );
```

Description Runs an object. The object can be the entire SVP application, a scenario and a test. This method also checks if a test or a testcard has been locked. If the object has been locked, an error is thrown.

Before you use this function, call `PrepareRun` to verify the settings.

NOTE To run single tests and scenarios, you must call `UpdateStatus` to query the current object status.

Return Value No return value.

See Also *"Stop" on page 82*
"PrepareRun" on page 78

SetID

Include Files

```
#include <bstring.h>
#include <svpbase.h>
```

Call

```
virtual void SetID( const BString & theID );
```

Description Assigns a user-specific name to this object.

Return Value No return values.

Input Parameters **theID** User name of the object.

See Also *"GetID" on page 72*

Example

```
// assign a custom test function
newTest->SetTestFct(&g_customFct);
newTest->SetID("My custom test");
```

StaticReport

Include Files `#include <svpbase.h>`

Call `virtual ostream & StaticReport( ostream  & o );`

The static report is generated after the setup has been finished and before any actual testing takes place.

This report gives information about:

- Software

  Version, build number or DLL versions

- System configuration

  Operating system, number of processors, number of busses

- Testcard configuration

  Number of cards, types of cards, firmware version(s), possibly serial numbers to uniquely identify cards

- Test setup and the number of scheduled tests

Return Value Reference to the `ostream` object input parameter.

Input Parameters **o** `ostream` object. The `ostream` object can be, for example, `cout`, `cerr`, or an `ofstream` file.

See Also *"GetLog" on page 72*
"GetNewLog" on page 74

Status

Include Files `#include <svpbase.h>`

Call `virtual EState Status( void ) const;`

Description Queries status information of an object. For status information, see *"EState" on page 108*.

Return Value Status of the object.

See Also *"UpdateStatus" on page 82*

Stop

Include Files `#include <svpbase.h>`

Call `virtual void Stop( void );`

Description Stops the running object. The object can be the entire SVP application, a scenario or a test.

Return Value No return value.

See Also *"Run" on page 80*

UpdateStatus

Include Files `#include <svpbase.h>`

Call `virtual EState UpdateStatus( void );`

Description Returns the updated status of this object. For status information, see *"EState" on page 108*.

Return Value Updated status of the object.

See Also *"Status" on page 81*

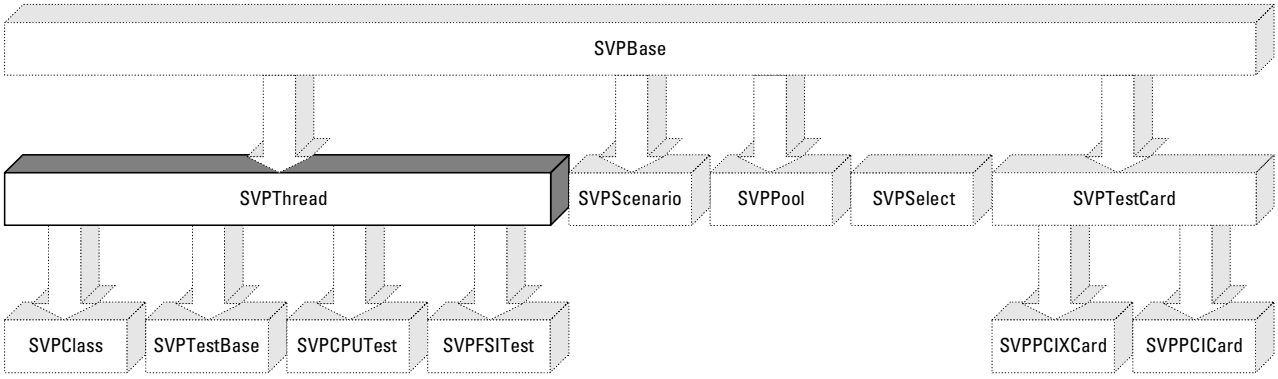
SVPThread Class

Description

The `SVPThread` class includes the `SVPBase` members. This class overrides some of the `SVPBase` methods to provide basic threading functionality for the following classes:

- `SVPClass`
- `SVPCPUTest`
- `SVPTestBase`
- `SVPFSITest`

All members of the `SVPThread` class are platform-dependent.



Characteristic Members

The following table lists all public members of the `SVPThread` class that are recommended for direct use.

Public Methods	
virtual void	Run (void)
virtual void	Stop (void)

Inherited Members

The following tables list the members inherited from the `SVPBase` class.

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Various Public Methods	
virtual void	Init (void)
virtual void	Check (const BErr & errLog)
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)
virtual void	RemoveObject (const ESVPObjectType objectType, const BString & strID)
virtual void	InsertObject (SVPBase & pSvpObject)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Default Settings	
virtual void	Default (void)

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual ostream &	GetNewLog (ostream & o)
virtual void	ClearLog (void)
virtual ostream &	StaticReport (ostream & o)
virtual const BErr &	GetErr (void) const

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

For detailed description of the inherited members, refer to *"SVPBase Class" on page 65*.

Run

Include Files `#include <svpthrd.h>`

Call `public virtual void Run( void );`

Description Executes the thread.

Return Value No return value.

See Also *"Stop" on page 85*

Stop

Include Files `#include <svpthrd.h>`

Call `public virtual void Stop( void );`

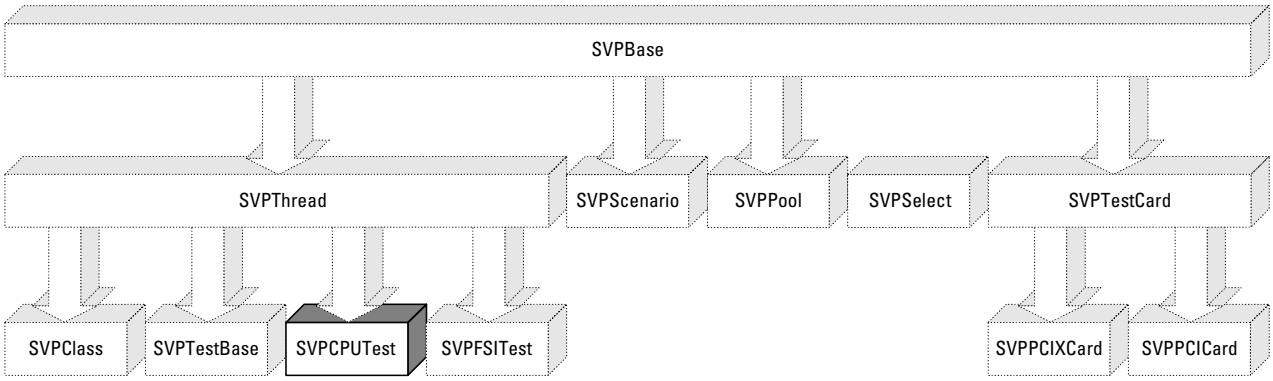
Description Stops the running thread.

Return Value No return value.

See Also *"Run" on page 85*

SVPCPUTest Class

Description The `SVPCPUTest` class is used to perform tests with CPU interaction.



Characteristic Members This class contains no additional members that can be directly called by the user.

Inherited Members from SVPThread The following table lists the members inherited from the `SVPThread` class.

Public Methods	
virtual void	Run (void)
virtual void	Stop (void)

For detailed description of these inherited members, refer to *"SVPThread Class" on page 83*.

Inherited Members from SVPBase The following tables list the members inherited from the `SVPBase` class.

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Various Public Methods	
virtual void	Init (void)
virtual void	Check (const BErr & errLog)
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)
virtual void	RemoveObject (const ESVPObjectType objectType, const BString & strID)
virtual void	InsertObject (SVPBase & pSvpObject)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Default Settings	
virtual void	Default (void)

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

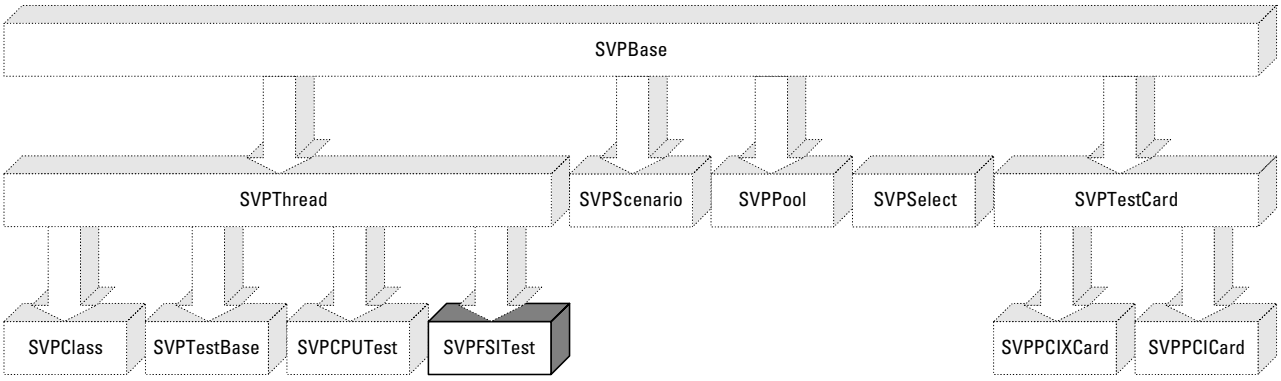
Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual ostream &	GetNewLog (ostream & o)
virtual void	ClearLog (void)
virtual ostream &	StaticReport (ostream & o)
virtual const BErr &	GetErr (void) const

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

For detailed description of these inherited members, refer to *"SVPBase Class" on page 65*.

SVPFSITest Class

Description The `SVPFSITest` class is used to perform tests with FSI (Front Side Interface) interaction. The FSI is used whenever internal control of testcards is not desired or cannot be achieved.



Characteristic Members This class contains no additional members that can be directly called by the user.

Inherited Members from SVPThread The following table lists the members inherited from the `SVPThread` class.

Public Methods	
virtual void	Run (void)
virtual void	Stop (void)

For detailed description of these inherited members, refer to *"SVPThread Class" on page 83*.

Inherited Members from SVPBase The following tables list the members inherited from the `SVPBase` class.

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Various Public Methods	
virtual void	Init (void)
virtual void	Check (const BErr & errLog)
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)
virtual void	RemoveObject (const ESVPObjectType objectType, const BString & strID)
virtual void	InsertObject (SVPBase & pSvpObject)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Default Settings	
virtual void	Default (void)

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

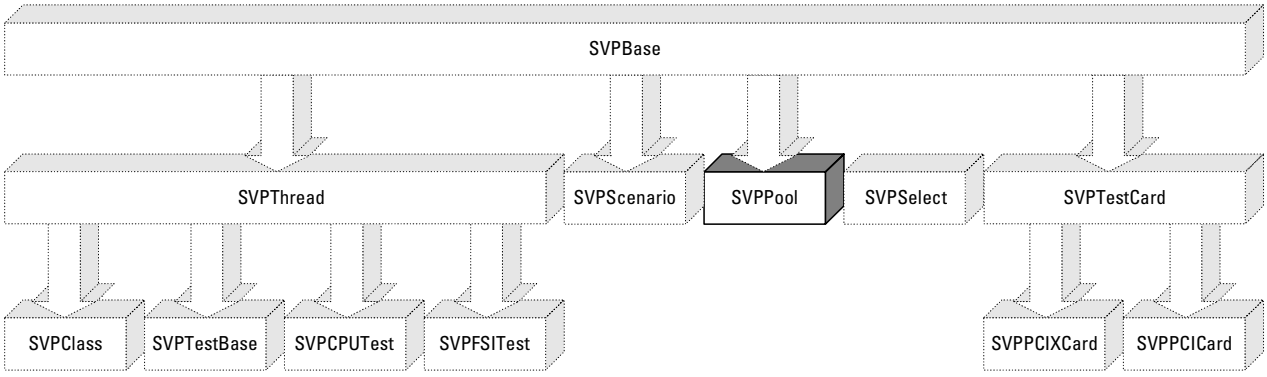
Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual ostream &	GetNewLog (ostream & o)
virtual void	ClearLog (void)
virtual ostream &	StaticReport (ostream & o)
virtual const BErr &	GetErr (void) const

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

For detailed description of these inherited members, refer to *"SVPBase Class" on page 65*.

SVPPool Class

Description The `SVPPool` class is not to be used directly. It is used by `SVPClass` to handle the pool of testcards and the pool of tests.



Characteristic Members This class contains no additional members that can be directly called by the user.

Inherited Members The following tables list the members inherited from the `SVPBase` class.

Constructor
No public constructor available. Use SVPClass::CreateObject instead.

Destructor
No public destructor available. Use SVPClass::RemoveObject instead.

Various Public Methods	
virtual void	Init (void)
virtual void	Run void)
virtual void	Stop (void)
virtual void	Check (const BErr & errLog)
virtual void	PrepareRun (SVPPropSection * propsection)
virtual EState	Status (void) const
virtual EState	UpdateStatus (void)
virtual void	RemoveObject (const ESVPObjectType objectType, const BString & strID)
virtual void	InsertObject (SVPBase & pSvpObject)

Access to Lists of Enumerations/Direct Object Access	
virtual const SVPList *	GetChildList (void)

Static Member Methods	
static const ESVPObjectType	GetObjectTypeByName (const BString & name)
static const BString	GetNameByObjectType (const ESVPObjectType objectType)

Identification Routines	
virtual const ESVPObjectType	GetObjectType (void) const
virtual const BString	Name (void) const
virtual void	SetID (const BString & theID)
virtual const BString &	GetID (void) const

Default Settings	
virtual void	Default (void)

Property Publication	
virtual CPropEl &	GetProp (const BString & key) const
virtual bool	CheckProp (const BString & key) const

Reporting	
virtual BLog &	Log (void)
virtual ostream &	GetLog (ostream & o)
virtual ostream &	GetNewLog (ostream & o)
virtual void	ClearLog (void)
virtual ostream &	StaticReport (ostream & o)
virtual const BErr &	GetErr (void) const

For detailed description of the inherited members, refer to *"SVPBase Class" on page 65*.

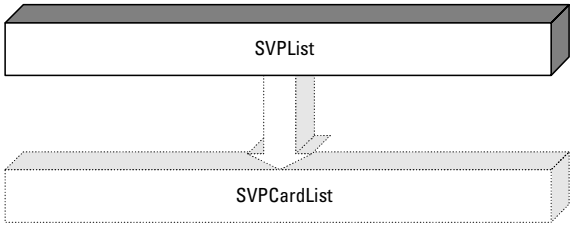
SVPList Class

Description

The `SVPList` class provides a container class for SVP objects. SVP objects can be:

- scenarios (`SVPScenario` objects)
- tests (`SVPTestBase` objects)
- testcards (`SVPTestCard`, `SVPPCICard` or `SVPPCIXCard` objects)

This class provides methods for modifying settings files and methods for walking through the lists.



Characteristic Members

The following tables list all public members of the `SVPList` class that are recommended for direct use.

Constructor	
	SVPList (SVPBase * parent, const ESVPObjectType objectType)

Destructor	
virtual ~	SVPList (void)

Other Public Methods	
virtual void	DiscardList (void)

Identification Routines	
const ESVPObjectType	GetObjectType (void) const

Element Access	
virtual SVPBase *	operator [ ] (int index) const
virtual SVPBase *	operator [ ] (const BString & strID) const
virtual int	Count (void) const

String List of all Object IDs	
BString	GetObjectIdList (void) const

Count

Include Files `#include <svplist.h>`

Call `virtual int count( void ) const;`

Description Counts the number of objects in this list object.

Return Value Number of objects as integer.

See Also –

DiscardList

Include Files `#include <svplist.h>`

Call `virtual void DiscardList( void );`

Description Removes all elements of this list object.

Return Value No return value.

See Also –

GetObjectIdList

Include Files

```
#include <bstring.h>
#include <svplist.h>
```

Call

```
BString GetObjectIdList( void ) const;
```

Description

Gets a string with a list of all object strings that are included in this list object.

Return Value

`BString` object that contains all object strings of this list.

See Also

"GetObjectType" on page 98

Example

```
BString theStr;
theStr = svp.GetChildList()->GetObjectIdList();
cout << "Names of all scenarios: " << theStr << endl;
```

GetObjectType

Include Files `#include <svplist.h>`

Call `const ESVPObjectType GetObjectType( void ) const;`

Description Gets the type of the objects that are included in this list object.

Return Value Type of the objects; see *"ESVPObjectType" on page 109*.

See Also –

Operator [] (int index)

Include Files `#include <svplist.h>`

Call `virtual SVPBase * operator [] ( int index ) const;`

Description Gets the list element (object) with the specified number.

NOTE The index starts at `0`. The last element in the list is (`Count()-1`).

Return Value Pointer to the object.

Input Parameter **index** Index.

See Also –

Operator [] (const BString & strID)

Include Files `#include <svplist.h>`

Call `virtual SVPBase * operator [] ( const BString & strID) const;`

Description Gets the list element (object) with the specified user-defined ID.

Return Value Pointer to the object.

Input Parameter **strID** User-defined name of the object.

See Also –

SVPList, Constructor

Include Files

```
#include <svplist.h>
```

Call

```
public SVPList(
                SVPBase         * parent,
          const ESVPObjectType  & objectType);
```

Description Defines a list of objects. This list is specified by the parent object. The objects within this list are specified by the object type.

Return Value `SVPList` object.

Input Parameters

parent Pointer to the parent object of this list.

objectType Type of the objects in this list; see *"ESVPObjectType" on page 109*.

See Also *"SVPList, Destructor" on page 99*

SVPList, Destructor

Include Files

```
#include <svplist.h>
```

Call

```
public virtual ~SVPList( void );
```

Description Frees the memory space that has been allocated for this `SVPList` object.

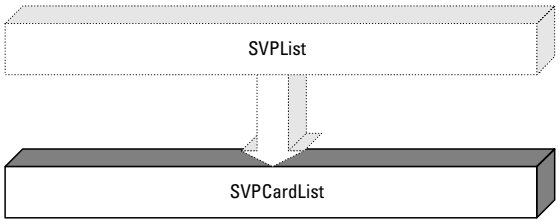
Return Value No return value.

See Also *"SVPList, Constructor" on page 99*

SVPCardList Class

Description

The `SVPCardList` class is able to scan the system for available testcards and to build a list of these testcards.



Characteristic Members

This class contains no additional members that can be directly called by the user.

Inherited Members

The `SVPCardList` class includes the members of the `SVPList` class. The following tables list the members inherited from the `SVPList` class.

Constructor	
	SVPList (SVPBase * parent, const ESVPObjectType objectType)

Destructor	
virtual ~	SVPList (void)

Other Public Methods	
virtual void	DiscardList (void)

Identification Routines	
const ESVPObjectType	GetObjectType (void) const

Element Access	
virtual SVPBase *	operator [ ] (int index) const
virtual SVPBase *	operator [ ] (const BString & strID) const
virtual int	Count (void) const

String List of all Object IDs	
BString	GetObjectIdList (void) const

For detailed description of the inherited members, refer to *"SVPList Class" on page 95*.

Classes of the Service Library

The Service Library includes a number of classes with the following general purposes:

- Error handling; see *"BErr" on page 103*.
- String handling; see *"BString" on page 104*.
- Address handling; see *"BAddress" on page 104*.
- Generation and access of random data fields; see *"BRandomData" on page 104*.
- Live report handling; see *"BLog" on page 105*.
- Testcard's and other device's location handling; see *"BLocation" on page 106*.

BErr

The `BErr` class handles all errors that occur within the SVP application. It is used both in the Test API library (see *"Classes of the Test API Library" on page 11*) and the FSILib library. (The FSI library is not needed for direct use. For detailed information, refer to header file `<fsilib.h>`.)

The `BErr` class provides methods for passing back and forth error messages and other error information.

For further reference information, refer to header file `<berr.h>`.

BString

The `BString` class provides a common class for handling strings. This class provides basic functionality such as string concatenation, formatting and stream insertion.

For further reference information, refer to header file `<bstring.h>`.

BAddress

The `BAddress` class provides methods for address handling in configuration space, memory space and I/O space. This class also provides the functionality for converting physical to virtual addresses and vice-versa.

For further reference information, refer to header file `<baddress.h>`.

BRandomData

The `BRandomData` class provides a container for generation and access of random data fields. This class also provides random functions and can be used in environments where random data generation needs to be customized.

For further reference information, refer to header file `<brandom.h>`.

BLog

Description The `BLog` class is a stream class for handling live reports. Each `SVPBase` object (see *"SVPBase Class" on page 65*) owns a `BLog` object for reporting.

Characteristic Members Only one public method is user-callable. Neither the public constructor nor the public destructor are needed outside the `TestAPI` library.

Constructor
Public constructor is not needed outside the Test API library.

Destructor
Public constructor is not needed outside the Test API library.

Public Method	
ostream &	GetOStream (void)

GetOStream

Include Files `#include <blog.h>`

Call `ostream & GetOStream( void );`

Description Returns the reference to an `ostream` object. The `ostream` object can be, for example, `cout`, `cerr`, or an `ofstream` file.

Return Value Reference to the `ostream` object. This reference can be used for streaming strings into the live report.

See Also *"GetLog" on page 72*
"GetNewLog" on page 74

BLocation

The `BLocation` class provides an interface for handling the locations of testcards and other devices in the system under test. This class handles bus numbers, device numbers and function numbers and provides methods for storing and printing the bus widths and the bus speeds.

For further reference information, refer to header file `<brandom.h>`.

Enumeration Definitions

All enumeration definitions are listed in alphabetically order:

- *"EAddressSpace" on page 107* defines available address spaces such as I/O or system memory.
- *"ECardType" on page 108* defines available types of testcards for PCI and PCI-X bus systems.
- *"EState" on page 108* defines different states of an object, for example, whether a test object is running or waiting.
- *"ESVPObjectType" on page 109* defines available object types, such as test or testcard objects.

EAddressSpace

enum EAddressSpace	Description
SPACE_IO	I/O address space.
SPACE_MEM	System main memory or memory of the testcard (depends on the kind of test).
SPACE_CONF	Configuration address space.

ECardType

enum ECardType	Description
UNKNOWN	Unknown testcard
PCI	PCI testcard (for example, E2925B, E2926B)
COMPACT_PCI	Compact PCI testcard (E2940A)
PCI-X	PCI-X testcard (E2929A, E2922A)

EState

enum Estate	Description
S_UNKNOWN	Unknown state.
S_INIT	Object is initialized and ready to run.
S_WAIT	Object is preparing to run.
S_STOP	Object is stopped.
S_RUN	Object is running.
S_PAUSE	Object is paused.
S_ERROR	Object has encountered a run-time error (recoverable).
S_EXCLUDE	Object is excluded or has an unrecoverable error condition.

ESVPObjectType

enum ESVPObjectType	Description
T_TESTCARD	Defines the object type of a testcard.
T_SVP	Defines the object type of the whole SVP application.
T_SCENARIO	Defines the object type of a scenario.
T_TEST	Defines the object type of a test.
T_CPUTEST	Defines a test that performs CPU interaction.
T_FSITEST	Defines a test that performs FSI interaction.

Setup File Reference

All settings of the System Validation Package can easily be set or modified by the user via C++ programming.

For property setting and modifying, use the names and value ranges that are listed in all following tables. You can find:

- One scenario property and properties of the available tests

  The scenario property and the test properties with their value ranges are described in *"Scenario and Test Parameter" on page 112*.

- Properties of the available testcards

  The testcard properties and their value ranges are described in *"Testcard Parameters" on page 113*.

For more information, especially on PPR properties, please refer to the *Agilent C-API/PPR Programming Reference*, which is delivered with the respective testcard.

Scenario and Test Parameter

Scenario Property

Scenarios allow several tests to be run concurrently. Any testcard can only be used once per scenario. Scenarios have no special settings except for the list of tests that are used.

Scenario Property	Scenario Property used in the User Program	Values	Description
Scenario	items.list	string list	List of tests (by names) that are used in this scenario

Test Properties

All tests share some or all of the following properties:

Test Property	Test Property used in the User Program	Values	Description
Address Offset	address	address value	Physical address of the memory
Address Space	address.space	“mem” or “io”	Memory space or I/O space is used
Bytes to Transfer	size	DWORD	Size of the memory (in bytes) that is use.
Prefetchable Decoder	address.prefetch	True or False	The pre-fetchable decoder is used if available
Bandwidth %	bandwidth	0 … 100	Value of the maximum bandwidth. **Note:** Using a bandwidth < 1.0 will cause that the PPR testcard setting B_M_DELAY is overridden.
Description	description	string	User-defined description
Function	function	string	Short name of test function
Start Delay	starttimeoffset	DWORD	Start Delay in seconds (from start of scenario)
Duration	duration	DWORD	Duration of the test (in seconds)

Testcard Parameters

Testcard parameters can be divided into:

- Testcard and Location Information
- Card Features Settings
- Master Settings (for PCI Testcards)
- Target Settings (for PCI Testcards)
- Requester Settings (for PCI-X Testcards)
- Completer Settings (for PCI-X Testcards)
- Protocol Checker (Rule Masking)

Testcard and Location Information

Card Property	Testcard Property used in the User Program	Type	Range	Description
Serial Number	card.serialnumber	string	valid serial number	Serial number of the testcard
Port	connection.port	port string	rs232 | fhif | pci | usb (PCI-X only)	Connection port of the testcard
Port Number	connection.portnum	DWORD	depends on port	Connection port number
Model Number	card.model	string	valid models	Model number of the testcard
Location	card.location	string	valid locations	Location of the testcard (for example, Bus 0 Device 13 Function 0)

Card Features Settings

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
Use Performance	use.performance	boolean	True or False	Performance counters of the testcard are enabled or disabled
Use Protocol Checker (Rule Masking)	use.observer	boolean	True or False	Protocol Observer of the testcard is enabled or disabled
Use Master	use.master	boolean	True or False	Master of the testcard is enabled or disabled
Use Target	use.target	boolean	True or False	Target of the testcard is enabled or disabled
Use PPR	use.ppr	boolean	True or False	Attribute permutation is enabled or disabled
Use Analyzer	use.tracememory	boolean	True or False	Analyzer of the testcard is enabled or disabled
Use Trigger I/O Lines	use.triggerio	boolean	True or False	Cross-triggering is enabled or disabled
Upload Trace on Trigger	tracememory.upload	boolean	True or False	Trace memory upload is enabled or disabled
n/a	tracememory.trigger. proterr	boolean	True or False	Trace memory trigger on protocol error is enabled or disabled
n/a	tracememory.trigger. datacmp	boolean	True or False	Trace memory trigger on data compare error is enabled or disabled
n/a	tracememory.trigger. bushang	boolean	True or False	Trace memory trigger on bushang is enabled or disabled
n/a	tracememory.trigger. spliterr	boolean	True or False	Trace memory trigger on split error is enabled or disabled
Inhibit FSI	inhibit.fsi	boolean	True or False	Inhibit connection to FSI on host
File	tracememory. upload.file	string		Name of the file to which the card's trace memory is written (without extension)
n/a	performance.measure	DWORD	0 … 7	Measure used by performance
n/a	performance. cardmeasure	DWORD	0 … 7	Measure used by card's performance

Master Settings (for PCI Testcards)

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
n/a	master.blockpage	DWORD	0 … 16	Blockpage used by the master
Write Command	master.block.cmd.write	DWORD	mem_write, mem_ writeinvalidate	PCI bus command for the block transfer (mem)
Read Command	master.block.cmd.read	DWORD	mem_read, mem_readline, mem_ readmultiple	PCI bus command for the block transfer during address phase (mem)
Master Internal Address	master.address.internal	DWORD	0 … size of data memory	Internal address of the testcard's data memory; used by the master
Block Size List (Master PPR)	ppr.master.block.size.lis t	string	Multiple of 4 in the range of 4 … 128k	List of numeric values for block sizes, measured in bytes
Block Algorithm (Master PPR)	ppr.master.block.alg	DWORD	0 … 3	Algorithm used to pick values from the value list of master block properties
Block Byte Enable List (Master PPR)	ppr.master.block.byten. list	string	0 … 15	List of numeric values for C/BE byte enables
Block Commands List (Master PPR)	ppr.master.block.cmds. list	DWORD	0 … 15	List of PCI bus commands used for permutations
Block Alignment List (Master PPR)	ppr.master.block. align.list	string	*Granularity:* Power of 2 between cacheline size and 8192. *Offset:* Multiple of 4 between 0 and 8188	Granularity and offset within this granulariy that restrict the start of a block
PPR Report (Master Block)	ppr.master.block.report	boolean	True or False	Writing of the PPR report is enabled or not
PPR Block Report File (Master Block)	ppr.master.block. report.file	string		Name of the file used for the PPR report or master block permutations
Master Attribute Page (memory)	master.attrpage.memory	DWORD	0 … 63	Attribute page used for access to the memory space by testcard
Master Attribute Page (i/o)	master.attrpage.io	DWORD	0 … 63	Attribute page used for access to the I/O space by testcard
Waits List (Master PPR Attribute)	ppr.master.attr.waits.list	string	0 … 30	List of numbers of waits
Burst Length List (Master PPR Attribute)	ppr.master.attr.last.list	string	0 … 2^{32}	List of last phases of bursts (this is, burst lengths)
Release Request (Master PPR Attribute)	ppr.master.attr.rreq.list	string	0 … 15	List of number of cycles after which REQ# is released after assertion of FRAME#

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
DPERR List (Master PPR Attribute)	ppr.master.attr.dperr.list	string	0 or 1	List of parity errors, signaled or not signaled
SPERR List (Master PPR Attribute)	ppr.master.attr.dserr.list	string	0 or 1	List of system errors in the data phase, signaled or not signaled
APERR List (Master PPR Attribute)	ppr.master.attr.aperr.list	string	0 or 1	List of system errors in the address phase, signaled or not signaled
DWRPAR List (Master PPR Attribute)	ppr.master.attr.dwp.list	string	0 or 1	List of wrong parities set one clock after a write data transfer, inverted or not inverted
AWRPAR List (Master PPR Attribute)	ppr.master.attr.awp.list	string	0 or 1	List of wrong parities set one clock after the address phase, inverted or not inverted
WAITMODE List (Master PPR Attribute)	ppr.master.attr. waitmode.list	string	0 or 1	List of values to keep the address constant during the WAITS phases or not
STEPMODE List (Master PPR Attribute)	ppr.master.attr. stepmode.list	string	0 or 1	List of values to keep the address constant during the STEPS phases or not
STEPS List (Master PPR Attribute)	ppr.master.attr. steps.list	string	0 or 1	List of numbers of additional clocks during an address phase They are added between assertion of GNT# and assertion of FRAME#.
TRYBACK List (Master PPR Attribute)	ppr.master.attr.tryback. list	string	0 or 1	List of Fast Back-to-Back cycle tries
DELAY List (Master PPR Attribute)	ppr.master.attr.delay.list	string	2 … 2^{21}	List of numbers of clocks a master transaction is delayed before its start **Note:** Delay will be modified if bandwidth < 100 % (specified in test).
REQ64 List (Master PPR Attribute)	ppr.master.attr.req64.list	string	0 or 1	List of 64-bit transfer tries
AWRPAR64 List (Master PPR Attribute)	ppr.master.attr.awp64. list	string	0 or 1	List of wrong parities (PAR64) set one clock after the address phase, inverted or not inverted
DACWRPAR (Master PPR Attribute)	ppr.master.attr.dacwp. list	string	0 or 1	List of wrong parities signaled in the second cycle of a dual address cycle, inverted or not inverted
DACWRPAR64 (Master PPR Attribute)	ppr.master.attr. dacwp64.list	string	0 or 1	List of wrong parities (PAR64) signaled in the second cycle of a dual address cycle, inverted or not inverted
DACPERR List (Master PPR Attribute)	ppr.master.attr.dacperr. list	string	0 or 1	List of system errors in the second cycle of a dual address cycle, signaled or not signaled
DWRPAR64 List (Master PPR Attribute)	ppr.master.attr.dwp64. list	string	0 or 1	List of wrong parities (PAR64) set one clock after a write data transfer, inverted or not inverted

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
RESUMEDELAY List (Master PPR Attribute)	ppr.master.attr. resumedelay.list	string	2 … 127	List of clock numbers after which the master resumes after a target termination
PPR Report (Master Attribute)	ppr.master.attr.report	boolean	True or False	Writing of the PPR report is enabled or not
PPR Report	ppr.report	boolean	True or False	Writing of the PPR report is enabled or not
PPR Report File	ppr.report.file	boolean	True or False	Name of the file used for the PPR report of completer permutations

Target Settings (for PCI Testcards)

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
Target Attribute Page Number	target.attrpage	DWORD	0 … 63	Attribute page used by the target
Termination List (Target PPR Attribute)	ppr.target.attr.term.list	string	0 … 3	List of termination modes, for example, “32*noterm, 2*retry, disconnect, abort”
WAITS List (Target PPR Attribute)	ppr.target.attr.waits.list	string	0 … 30	List of number of waits
DPERR List (Target PPR Attribute)	ppr.target.attr.dperr.list	string	0 or 1	List of parity errors, signaled or not signaled
SPERR List (Target PPR Attribute)	ppr.target.attr.dserr.list	string	0 or 1	List of system errors in the data phase, signaled or not signaled
APERR List (Target PPR Attribute)	ppr.target.attr.aperr.list	string	0 or 1	List of parity errors in the address phase, signaled or not signaled
WRPAR List (Target PPR Attribute)	ppr.target.attr.wp.list	string	0 or 1	List of wrong parities set one clock after a write data transfer, inverted or not inverted
ACK64 List (Target PPR Attribute)	ppr.target.attr.ack64.list	string	0 or 1	List of 64-bit requests, acknowledged or not acknowledged
Target Attribute DACPERR List	ppr.target.attr.dacperr.list	string	0 or 1	List of address parity errors, signaled or not signaled
Target Attribute WRPAR64 List	ppr.target.attr.wp64.list	string	0 or 1	List of wrong parities set one clock after a write data transfer, inverted or not inverted
Target Attribute Report	ppr.target.attr.report	boolean	True or False	Writing of the PPR report is enabled or not
Target Attribute Report File	ppr.target.attr.reportfile	string		Name of the file used for the PPR report or target attribute permutations

Requester Settings (for PCI-X Testcards)

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
BUSCMD List (RI PPR Block)	ppr.ri.blk.buscmd.list	DWORD	0 … 15	List of PCI-X bus commands used for permutations
BYTEN List (RI PPR Block)	ppr.ri.blk.byten.list	string	0 … 15	List of numeric values for byte enables This parameter is only valid for block transfers with the command *memwrite*.
ALIGN List (RI PPR Block)	ppr.ri.blk.align.list	string	0 … 7	List of alignments to QWORD boundary
NUMBYTES List (RI PPR Block)	ppr.ri.blk.numbytes.list	string	0 … MaxDWord	List of number of bytes in the current block
RELAXORDER List (RI PPR Block)	ppr.ri.blk.relaxorder.list	string	0 or 1	List of relaxed ordering bits (relaxed ordering is done or not done)
NOSNOOP List (RI PPR Block)	ppr.ri.blk.nosnoop.list	string	0 or 1	List of bits that signify whether no snoop will be done
BYTECOUNT List (RI PPR Behavior)	ppr.ri.beh.bytecount.list	string	0 … 4096	List of numeric values for byte counts. Sequences are generated with these byte counts
DISCONNECT List (RI PPR Behavior)	ppr.ri.beh.disconnect.list	string	0 … 32	List of values that determine whether and how often a requester-initiator will disconnect its current sequence
DELAY List (RI PPR Behavior)	ppr.ri.beh.delay.list	string	1 … 65535	List of numbers of clock delays
STEPS List (RI PPR Behavior)	ppr.ri.beh.steps.list	string	0 … 32	List of address steps numbers
REQ64 List (RI PPR Behavior)	ppr.ri.beh.req64.list	string	0 or 1	List of 64-bit data transfer tries
RELREQ List (RI PPR Behavior)	ppr.ri.beh.relreq.list "	string	1 … 2047	List of number of cycles after which REQ# is released after assertion of FRAME#
DECSPEED List (RT PPR Behavior)	ppr.rt.beh.decspeed.list"	string	A, B, C	List of decode speeds

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
ACK64 List (RT PPR Behavior)	ppr.rt.beh.ack64.list	string	No, Yes	List that determine s whether a 64-bit data transfer acknowledge will be asserted or will not be asserted
INITIAL List (RT PPR Behavior)	ppr.rt.beh.initial.list	string	Accept Single Retry TAbort	List that determines the initial behavior of the requester-target response
LATENCY List (RT PPR Behavior)	ppr.rt.beh.latency.list	string	3 … 34	List of numbers of initial latency clocks
SUBSEQ List (RT PPR Behavior)	ppr.rt.beh.subseq.list	string	0 or 1	List that specifies the target response in subsequent data phases 0: accepts all subsequent data phases 1: disconnects in the selected data phase
SUBSEQPHASE List (RT PPR Behavior)	ppr.rt.beh.subseqphase.list	string	0 … 2047	List of selected subsequent data phases

Completer Settings (for PCI-X Testcards)

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
PPR Report	ppr.report	boolean	True or False	Writing of the PPR report is enabled or not
PPR Report File	ppr.report.file	boolean	True or False	Name of the file used for the PPR report of completer permutations
PARTITION List (CI PPR Behavior)	ppr.ci.beh.partition.list	string	0 … 63	List that defines the sizes of the (partial) completion transactions.
ERRMESSAGE List (CI PPR Behavior)	ppr.ci.beh.errmessage.list	string	0 or 1	0: normal split completion transaction 1: split completion error message
DELAY List (CI PPR Behavior)	ppr.ci.beh.delay.list	string	1 … 65535	List of numbers of clock delays before REQ# is asserted
STEPS List (CI PPR Behavior)	ppr.ci.beh.steps.list	string	2 … 6	List of numbers of address steps
REQ64 List (CI PPR Behavior)	ppr.ci.beh.req64.list	string	0, 1	1: 64-bit data transfer 0: No 64-bit data transfer access

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
RELREQ List (CI PPR Behavior)	ppr.ci.beh.relreq.list"	string	1 … 2047	List of number of cycles after which REQ# is released after assertion of FRAME#
DECSPEED List (CT PPR Behavior)	ppr.ct.beh.decspeed.list	string	A, B, C	List of decode speeds
ACK64 List (CT PPR Behavior)	ppr.ct.beh.ack64.list	string	No, Yes	List that determine s whether a 64-bit data transfer acknowledge will be asserted or will not be asserted
INITIAL List (CT PPR Behavior)	ppr.ct.beh.initial.list	string	Accept Single Retry TAbort	List that determines the initial behavior of the completer-target response
LATENCY List (CT PPR Behavior)	ppr.ct.beh.latency.list	string	3 … 34	List of numbers of initial latency clocks
SUBSEQ List (CT PPR Behavior)	ppr.ct.beh.subseq.list = "Accept,Disconnect"	string	Accept Disconnect	List that specifies the target response in subsequent data phases. 0: accepts all subsequent data phases 1: disconnects in the selected data phase
SUBSEQPHASE List (CT PPR Behavior)	ppr.ct.beh.subseqphase.list	string	0 … 2047	List of selected subsequent data phases
SPLITLATENCY List (CT PPR Behavior)	ppr.ct.beh.splitlatency.list	string	3 … 18	List of numbers of wait cycles. A split response is signaled after the specified number of wait cycles.
SPLITENABLE List (CT PPR Behavior)	ppr.ct.beh.splitenable.list	string	0 or 1	0: No split response will be generated 1: A split response will be generated

Protocol Checker (Rule Masking)

Testcard Property	Testcard Property used in the User Program	Type	Range	Description
Protocol Rule Masking State Disabled (lower bits)	protocolrule.mask.lo	DWORD	32	Masked protocol rules (bit 0 … 31).
Protocol Rule Masking State Disabled (higher bits)	protocolrule.mask.hi	DWORD	20	Masked protocol rules (bit 32 … 51).
Mask Rule(s) After x Occurrences	protocolrule.mask. count	DWORD	0 … (2^{32} - 1)	Number of occurrences after which a rule is masked automatically. (0 : rule(s) will never be masked)

Overall Example Programs

The following sections provide example programs of setting up tests for system validation:

- A simple command line executable shows how to run tests immediately.
- A custom test function shows how to configure tests for individual test needs. In this example, a custom memory read test will be set up.

Both example programs show how to encapsulate calls to Test API functions and class methods in `try` blocks. A `try` block identifies a code block in which an exception can occur.

Simple Command Line Executable

The following example shows:

- How to run tests.
- How to get the static report.
- The C++ exception handling mechanism.

You will find this example under `svp\samples\svpexe.cpp`.

```
#include <iostream.h>

// include servlib (for BErr mainly)
#include <servlib.h>

// include testapi
#include <testapi.h>

//--------------------------------------------------------------
// int main (int argc, char * argv[])
//
// Purpose : main function
// Returns : error code on error, 0 on success
//--------------------------------------------------------------

int main (int argc, char * argv[])
{
   SVPClass svp; // The SVP object

   int retval = 0; // return value of program (0 - no errors)

   try
   {
      cerr << "Initializing SVP class..." << endl;

      // initialize svp from command line

      // call svpexe -h for help on command line options

      svp.CommandLineInit(argc, argv);

      cerr << "Printing out static report..." << endl;

      // print static report to stdout

      svp.StaticReport(cout);

      cerr << "Running Tests..." << endl;

      // run tests

      svp.Run();
```

```
      // print log (test report) to std out
      svp.GetLog(cout);
      cerr << "Querying status..." << endl;

      while (svp.Status() == SVPBase::S_RUN || svp.Status() ==
            SVPBase::S_WAIT)
      {
         // wait for ten seconds
         Sleep (10000); // replace this with/add additional test
         code
         // report additions to test report to stdout
         svp.GetNewLog(cout);
      }
   } // end of try block

   // any errors? All TestAPI functions will throw BErr objects as
      error
   catch (BErr theErr)
   {
      // print error report to std err
      cerr << argv[0] << ": ERROR condition:" << endl << theErr <<
      endl;
      // convert error code to return value
      retval = (int) theErr();
   }

   // catch other errors generated elsewhere
   catch (...)
   {
      cerr << "Caught unknown exception somewhere" << endl;
   }

   cout << flush; // make sure everything is on console here
   // wait for return key pressed
   cout << "Press return key to finish" << flush;
   getchar();
   cout << endl;
   return retval;
}
```

Custom Test Function

The following example shows you how to set up a custom memory read test. `It` shows you:

- How to create a new test.
- How to set test properties.
- How to assign a testcard to a test.
- How to assign a test to a scenario.
- The C++ exception handling mechanism.
- Two custom memory read functions, one of these functions initializes the test and the other runs it.

You will find this example under `svp\samples\svpcustom.cpp`.

```
#include <iostream.h>

#include <servlib.h>

#include <testapi.h>


//*****************************************************************
// function declarations:
// declare your custom test functions here
// NOTE: declare these before setting up STestFct object!
//*****************************************************************


void custommemread_init (SVPTestBase * svpTest);

void custommemread_run (SVPThread * svpThread);

// no stop function
```

```
/*********************************************************************
* this struct contains the actual test definitions
*********************************************************************/

STestFct g_customFct =
{
   "Custom Memory Read", // descriptive name

   "custommemread", // short name

   custommemread_init, // init function

   custommemread_run, // run function

   0, // no stop function

   1, 1, // one card only

   "Reads from main memory and does other custom testing", // long
   description

   tpf_FULL_ADDRESS | tpf_BANDWIDTH // test flags
};


/*********************************************************************
* main function body

*********************************************************************/

//-------------------------------------------------------------
// int main (int argc, char * argv[])
//
// Purpose : main function
// Returns : error code on error, 0 on success
//-------------------------------------------------------------

int main (int argc, char * argv[])
{
   SVPClass svp; // THE SVP object

   int retval = 0; // return value

   try
   {
      // some initial setup

      cerr << "Initializing SVP class..." << endl;

      svp.Default(); // set everything to default

      svp.Init(); // initialize SVP object

      // create new test object

      SVPTestBase * newTest = (SVPTestBase *) svp.CreateObject(T_TEST);

      SVPAssert(newTest); // make sure there are no errors
```

```
    // assign custom test function
    newTest->SetTestFct(&g_customFct);
    newTest->SetID("My custom test");
    // set some test properties
    newTest->GetProp("duration") = 120UL; // duration 120 seconds
    BAddress testAddress(0xb8000UL, 0UL, BAddress::SPACE_MEM);
    // address to use for test
    newTest->GetProp("address") = testAddress;
    // set address property of test
    // assign card to test (first testcard found)
    SVPBase * theCard = (*(svp.GetCardList()))[0];
    newTest->InsertObject(theCard);
    // insert test into first scenario
    (*svp.GetChildList())[0]->InsertObject(newTest);
    // run test
    cerr << "Running Tests..." << endl;
    svp.Run();
    // print report to cout
    svp.GetLog(cout);
    // start query loop
    cerr << "Querying status..." << endl;

    while (svp.Status() == SVPBase::S_RUN || svp.Status() ==
       SVPBase::S_WAIT)
    {
       Sleep (10000); // replace this with/add additional test code
       svp.GetNewLog(cout); // place additions to log on standard out
    }
}
```

```
   // any errors?
   catch (BErr theErr)
   {
      // print program name and error msg:
      cerr << argv[0] << ": ERROR condition:" << endl;
      // print error message to std err:
      cerr << theErr << endl;
      // prepare main's return value
      retval = (int) theErr();
   }

   // catch unknown errors (SVP will only throw BErr objects)
   catch (...)
   {
      cerr << "Caught unknown exception" << endl;
   }

   cout << flush; // make sure everything is on console here
   // wait for return key pressed
   cout << "Press return to exit" << flush;
   getchar();
   cout << endl;
   return retval;
}
```

```
//*********************************************************************
// custom memory read test
//*********************************************************************
//---------------------------------------------------------------------
// custommemread_init

// Purpose : initialize custom memory read test
// Inputs : testbase pointer
//---------------------------------------------------------------------

void
custommemread_init (SVPTestBase * svpTest)
{
   BErr::DbgPrint("Entering custommemread_init\n");

   SVPAssert (svpTest);

   // get address of test (from address property)

   BAddress address = svpTest->GetProp("address");

   address.SetSize(svpTest->GetProp("size"));

   // get first card in test's list

   SVPTestCard * theCard = (SVPTestCard *) svpTest->GetCardList()[0];

   theCard->MasterReadSetup(address);

   // important: give info about test function to testcard!

   SVPThread * newCPU = new SVPCPUTest(
                        theCard, svpTest->GetTestFct(), address);

   theCard->InsertObject(newCPU);
}

//---------------------------------------------------------------------
// custommemread_run

// Purpose : run custom memory read test
//---------------------------------------------------------------------

void
custommemread_run (SVPThread * svpThread)
{
   BErr::DbgPrint("Entering custom memread test run \n");

   SVPAssert (svpThread->GetObjectType() == T_CPUTEST);

   SVPCPUTest * svpCPUTest = (SVPCPUTest *) svpThread;

   const BAddress & theAddr = svpCPUTest->GetAddress();

   BLog & cpuLog = svpCPUTest->Log();

   // the following line is put in the test log...

   cpuLog.GetOStream() << "Entered Run Function" << endl;

   // this is the place to code your own test function, e.g.

   // (...)
}
```

Index

R

S

T

W

Printed in Germany June 2003

5988-4883EN

Agilent Technologies