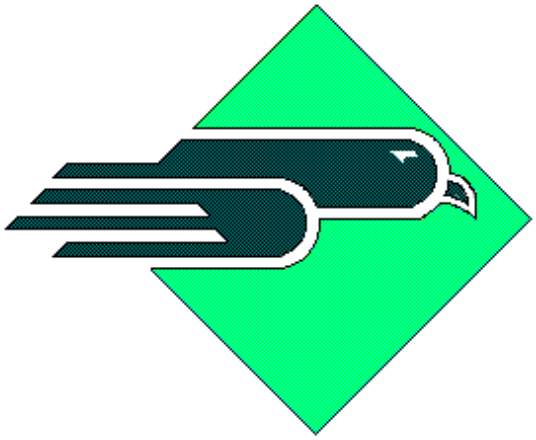

WESTERN AVIONICS

MIL-STD-1553 VXI (Model 2701)
LabWindows/CVI Drivers

P/N 1L01692H01 Rev 1.3

User Manual
UM 01692 Rev D

13/14 Shannon Free Zone
Co. Clare
Ireland

8 August 2000

TABLE OF CONTENTS FOR
FUNCTIONS PROVIDED

SURETEST 2701/2/3 MIL-STD-1553A/B Bus

Introduction:

The SURETEST 2701/2/3 cards are message based VXI 'C' sized modules providing an intelligent and powerful interface that allows the system controller to communicate with and test devices build in compliance with MIL-STD-1553 A/B serial digital bus,. Each card provides the user with three totally independent Functions that may be run simultaneously, these being:

A 1553 Bus Controller (BC) Simulator
A 1553 single or multiple Remote Terminal (RT) simulator
A 1553 Bus Monitor (BM) and Analyser

Instrument Driver:

This instrument driver provides programming support for SURETEST 2701/2/3 MIL-STD-1553A/B Bus.
It contains Functions for opening, configuring, taking measurement from, and closing the instrument.

Assumptions:

To successfully use this module, the following conditions must be met:

For GPIB instruments drivers:
The instrument is connected to the GPIB.
The GPIB address supplied to the initialise Function must match the GPIB address of the instrument.

For VXI instruments drivers:
The instrument is installed in the VXI mainframe and you are using one of the following controller options:
Embedded controller
AT-MXI
MC-MXI
GPIB-VXI
The logical address supplied to the initialise Function must match the logical address of the instrument.
If you are using GPIB-VXI, there must be at least one unused device name in the handler.

For RS-232 instruments drivers:
The instrument is connected to the RS-232 interface.
The COM port, baud rate, parity, and time-out supplied to the initialise Function must match the settings of the instrument.

Error Codes:

Error codes are returned as the Return Value of each instrument driver Function. A program should examine this value after each call to an instrument driver Function to determine if any error occurred. Possible error codes and their meanings are listed with the corresponding instrument driver Function.

How To Use This Document:

This document is intended to be used as a programming reference manual.
It describes each Function in the SURETEST 2701/2/3 MIL-STD-1553A/B Bus instrument. The Functions are listed in alphabetical order with a Description of the Function, C syntax of the Function, with a Description of each parameter. All possible error codes are listed on page 6, and are common to all Functions.

Function Tree Layout

Application Functions

Setup, Run & Monitor BC To RT Tx	wa2701_setupRunMonitorBCToRTTx

Configuration Functions

Configure BC Functions

Setup BC Message Params	wa2701_setupBCMsgParams
Setup BC Command Word	wa2701_setupBCCmdWord
Setup BC Msg Data Words	wa2701_setupBCMsgDataWords
Define Num BC Data Words to Tx	wa2701_defineNumBCDataWordsTo
Setup BC Msg Word Errors	wa2701_setupBCMsgWordErrors
Define BC Link Page	wa2701_defineBCLinkPage
Setup BC Frame Params	wa2701_setupBCFrameParams
Enable/Disable Trigger Pulse	wa2701_enableDisableTriggerPulse
Enable/Disable Superseding Cmd	wa2701_enableDisableSupersedingCmd
Define BC Sawtooth Data Func	wa2701_defineBCSawToothDataFunc
Setup BC Page Params	wa2701_setupBCPageParams

Configure RT Functions

Setup RT Page Parameters	wa2701_setupRTPageParams
Setup RT Page Status Word	wa2701_setupRTPageStatusWord
Setup RT Page Msg Data Words	wa2701_setupRTPageMsgDataWords
Setup RT Page Data Word Errors	wa2701_setupRTPageDataWordErrors
Define RT Pg Sawtooth Data Func	wa2701_defineRTPgSawToothDataFunc
Setup RT Page Msg Errors	wa2701_defineRTPageMsgErrors
Define RT Pg Mode Code Response	wa2701_defineRTPageModeCodeResponse
Map RT Sub Addr To Page & Enab	wa2701_mapRTSubaddrToPageAndEnable
Enable/Disable RT Sub Page	wa2701_enableDisableRTSubPage
Enable/Disable RT Mast Pg Data	wa2701_enableDisableRTMasterPageData

Configure BM Functions

Setup BM parameters	wa2701_setupBMParams
Arming of Trigger	wa2701_defineArmingOfTrigger
Define Trigger on Msg Word	wa2701_defineTriggerOnMsgWord
Define Trigger on Error	wa2701_defineTriggerOnErr
Define Capture Mode	wa2701_defineCaptureMode

Data Functions

BC Functions

Query BC Page params	wa2701_queryBCPageParams
Query RT Data	wa2701_queryRTData

Action/Status Functions

Start/Stop BC	wa2701_startStopBC
Start/Stop RT	wa2701_startStopRT
Start/Stop BM	wa2701_startStopBM

Utility Functions

Reset	wa2701_reset
Self Test	wa2701_self_test
Revision Query	wa2701_revision_query
Error Query	wa2701_error_query
Error Message	wa2701_error_message
Scan Chassis for SURETEST 2701s	wa2701_scan_chassis
Change Operating Mode	wa2701_changeOperatingMode
Query Monitor Stack	wa2701_queryMonitorStack
Wait	wa2701_wait

Common Commands

Initialise	wa2701_init
Set Status Mask	wa2701_setStatusMask
Set Operation Complete	wa2701_setOperComplete
Query Operation Complete Bit	wa2701_getOperComplete
Clear Status Register	wa2701_clearStatusRegister
Query Device Status Register	wa2701_queryDeviceStatusReg
Close	wa2701_close

Errors:

The possible error codes and their descriptions are as follows

0	VI_SUCCESS
3FFF0002h	VI_SUCCESS_EVENT_EN
3FFF0003h	VI_SUCCESS_EVENT_DIS
3FFF0004h	VI_SUCCESS_QUEUE_EMPTY
3FFF0005h	VI_SUCCESS_TERM_CHAR
3FFF0006h	VI_SUCCESS_MAX_CNT
3FFF0080h	VI_SUCCESS_QUEUE_NEMPTY
3FFF0084h	VI_WARN_NSUP_ATTR_STATE
3FFF0085h	VI_WARN_UNKNOWN_STATUS
BFFF0000h	VI_ERROR_SYSTEM_ERROR
BFFF000Eh	VI_ERROR_INV_OBJECT
BFFF000Eh	VI_ERROR_INV_SESSION
BFFF0010h	VI_ERROR_INV_EXPR
BFFF0011h	VI_ERROR_RSRC_NFOUND
BFFF0012h	VI_ERROR_INV_RSRC_NAME
BFFF0013h	VI_ERROR_ACC_MODE
BFFF0015h	VI_ERROR_TMO
BFFF0016h	VI_ERROR_CLOSING_FAILED
BFFF001Dh	VI_ERROR_NSUP_ATTR
BFFF001Eh	VI_ERROR_NSUP_ATTR_STATE
BFFF001Fh	VI_ERROR_ATTR_READONLY
BFFF0026h	VI_ERROR_INV_EVENT
BFFF0027h	VI_ERROR_INV_MECH
BFFF0028h	VI_ERROR_HNDLR_NINSTALLED
BFFF0029h	VI_ERROR_INV_HNDLR_REF
BFFF002Ah	VI_ERROR_INV_CONTEXT
BFFF0034h	VI_ERROR_RAW_WR_PROT_VIOL
BFFF0035h	VI_ERROR_RAW_RD_PROT_VIOL
BFFF0036h	VI_ERROR_OUTP_PROT_VIOL
BFFF0037h	VI_ERROR_INP_PROT_VIOL
BFFF0038h	VI_ERROR_BERR
BFFF003Ah	VI_ERROR_INV_SETUP
BFFF003Ch	VI_ERROR_ALLOC
BFFF003Dh	VI_ERROR_INV_MASK
BFFF003Eh	VI_ERROR_IO
BFFF003Fh	VI_ERROR_INV_FMT
BFFF0041h	VI_ERROR_NSUP_FMT
BFFF0042h	VI_ERROR_LINE_IN_USE
BFFF004Ah	VI_ERROR_SRQ_NOCCURRED
BFFF004Eh	VI_ERROR_INV_SPACE
BFFF0051h	VI_ERROR_INV_OFFSET
BFFF0054h	VI_ERROR_NSUP_OFFSET
BFFF0057h	VI_ERROR_WINDOW_NMAPPED
BFFF005Fh	VI_ERROR_NLISTENERS
BFFF0060h	VI_ERROR_NCIC
BFFF0067h	VI_ERROR_NSUP_OPER
BFFF0076h	VI_ERROR_NSUP_WIDTH
BFFF0079h	VI_ERROR_INV_PROT
BFFF007Bh	VI_ERROR_INV_SIZE
BFFF0080h	VI_ERROR_WINDOW_MAPPED
BFFF0081h	VI_ERROR_NIMPL_OPER

wa2701_changeOperatingMode

Function:
ViStatus wa2701_changeOperatingMode (ViSession instrHndl, ViInt16 operatingMode)

Description:
This Function is used to change the operating mode of the instrument between 1553A and 1553B modes. Changing the mode causes the instrument to perform hardware initialisation.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: : -
Default Value:-

operatingMode

Variable Type: ViInt16
Control Name: operatingMode.
Description: This parameter is used to select Operating Mode of the module.
Variable Type: ViInt16.
Valid Range: wa2701_1553A_MODE (1553A Mode)
wa2701_1553B_MODE (1553B Mode)
Default Value: : wa2701_1553B_MODE (1553B Mode)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: Long.

wa2701_clearStatusRegister

Function:
ViStatus wa2701_clearStatusRegister (ViSession instrHndl);

Description:
This Function clears all event registers, clears the OPC flag and clears all queues (except the output queue).

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Values : -
Default Value:-

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_close

Function:
ViStatus wa2701_close (ViSession instrHndl);

Description:
This Function closes the active session with the instrument and de-allocates system resources.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument,
Variable Type: ViSession
Valid Range: : -
Default Value: : -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineArmingOfTrigger

Function:
ViStatus wa2701_defineArmingOfTrigger (ViSession instrHndl, ViInt16 arming,
ViChar commandBitPatt[]);

Description:
This Function is used to configure Arming of Trigger and Command Bit pattern

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

arming

Variable Type: ViInt16
Control Name: arming
Description: This parameter is used to select the arming of trigger.
Variable Type: ViInt16
Valid Values: wa2701_BM_HARDWARE_ARMING Hardware Arming
wa2701_BM_SOFTWARE_ARMING Software Arming
wa2701_BM_BOTH_SW_HW_ARMING Both H/W & S/W
Default Value: wa2701_BM_BOTH_SW_HW_ARMING Both H/W & S/W Arming

commandBitPatt

Variable Type: ViChar []
Control Name: commandBitPatt
Description: This parameter is used to specify the Arming Command Bit Pattern.
This parameter is used when arming parameter is either Software arming or Both option.
This parameter is neglected if Hardware arming is selected.
This parameter contains 16 bits, where each bit can be set to 1,0 or X (don't care).
Variable Type: ViChar []
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineBCLinkPage

Function:
ViStatus wa2701_defineBCLinkPage (ViSession instrHndl, ViInt16 msgNum,
ViInt16 startLinkPagePosition,
ViInt16 BCPageNumArray[],
ViInt16 numOfBCPages);

Description:
This Function is used to define the BC Link Page.
The Link Page is provided to allow selection of individual messages in an ordered sequence, to define a single transmission.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Msg number to be configured.
Variable Type: ViInt16.
Valid Range: For normal commands
wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs, where maxMsgNums is obtained by executing the 'wa2701_queryBCPageParams()' Function.
Default Value: 1

startLinkPagePosition

Variable Type: ViInt16
Control Name: startLinkPagePosition
Description: This parameter is used to specify the starting Link Page Number
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_LINK_PAGE_MIN (0) to maxBCLinkPageLength
where maxBcLinkPageLength is obtained by using the C,B,L? command.
Default Value: wa2701_BC_MSG_LINK_PAGE_MIN (0)

BCPageNumArray

Variable Type: ViInt16 []
Control Name: BCPageNumArray[]
Description: This parameter is used to specify the BC Page numbers in a Link Page.
Variable Type: ViInt16
Valid Range: wa2701_BC_PAGE_NO_MIN (1) to maxBCMsgs
where maxBCMsgs is obtained by executing the 'queryMaxBCMsgs()' Function.
Default Value: -

numOfBCPages

Variable Type: ViInt16
Control Name: numOfBCPages
Description: This parameter is used to specify the number of BC Pages.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_LINK_PAGE_MIN (0) to
maxBCLinkPageLength - startLinkPagePosition + 1
where maxBcLinkPageLength is obtained by using the C,B,L? command.
where 'startLinkPagePosition' is the input parameter to this Function.
Default Value: wa2701_BC_PAGE_NO_MIN (1)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineBCSawToothDataFunc

Function:
ViStatus wa2701_defineBCSawToothDataFunc (ViSession instrHndl, ViInt16 msgNum,
ViInt16 sawtoothNum,
ViInt32 lowerLimit,
ViInt32 upperLimit, ViInt32 increment);

Description:
This Function is used to configure the BC Saw Tooth Data Function

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: : -
Default Value: : -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Msg number to be configured.
Variable Type: ViInt16.
Valid Range: For normal commands
wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs.
where 'maxNumOfBCMsgs' is obtained by executing wa2701_queryBCPageParams()' Function.
Default Value: wa2701_BC_PAGE_NO_MIN (1)

sawtoothNum

Variable Type: ViInt16
Control Name: sawtoothNum
Description: This parameter is used to specify the sawtooth Function number.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_SAWTOOTH_FUNC_MIN (0) to
wa2701_BC_MSG_SAWTOOTH_FUNC_MAX (2)
Default Value: wa2701_BC_MSG_SAWTOOTH_FUNC_MIN (0)

lowerLimit

Variable Type: ViInt32
Control Name: lowerLimit
Description: This parameter is used to specify the lower limit of the sawtooth Function
Variable Type: ViInt32
Valid Range: wa2701_BC_MSG_SAWTOOTH_LOWER_RANGE_MIN (0) to
wa2701_BC_MSG_SAWTOOTH_LOWER_RANGE_MAX (0xFFFF)
Default Value: wa2701_BC_MSG_SAWTOOTH_LOWER_RANGE_MIN (0)

upperLimit

Variable Type: ViInt32
Control Name: upperLimit
Description: This parameter is used to specify the upper limit of the sawtooth Function The value of this parameter must be greater than that of the lower limit.
Variable Type: ViInt32
Valid Range: wa2701_BC_MSG_SAWTOOTH_UPPER_RANGE_MIN (1) to wa2701_BC_MSG_SAWTOOTH_UPPER_RANGE_MAX (0xFFFF)
Default Value: 1

increment

Variable Type: ViInt32
Control Name: increment
Description: This parameter is used to specify the increment value for the specified Sawtooth Data Function.
Variable Type: ViInt32
Valid Range: wa2701_BC_MSG_SAWTOOTH_INC_MIN (0) to wa2701_BC_MSG_SAWTOOTH_INC_MAX (0xFFFF)
Default Value: wa2701_BC_MSG_SAWTOOTH_INC_MIN (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineCaptureMode

Function:
ViStatus wa2701_defineCaptureMode (ViSession instrHndl, ViInt16 captureMode,
ViChar selectiveBitPatt[]);

Description:
This Function is used to configure the Capture Mode.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

captureMode

Variable Type: ViInt16
Control Name: captureMode
Description: This parameter is used to select the capture mode as either Normal or Selective capture.
Variable Type: ViInt16
Valid Range: wa2701_BM_NORMAL_CAPTURE Normal capture Mode
wa2701_BM_SELECTIVE_CAPTURE Selective capture Mode
Default Value: wa2701_BM_NORMAL_CAPTURE Normal capture Mode

selectiveBitPatt

Variable Type: ViChar []
Control Name: selectiveBitPatt
Description: This parameter is used to specify the Selective Command Bit pattern.
This parameter is neglected when captureMode is 'Normal'.
This parameter contains 16 bits, where each bit can be set to 1,0 or X (don't care).
Variable Type: ViChar []
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineNumBCDataWordsToTx

Function:
ViStatus wa2701_defineNumBCDataWordsToTx (ViSession instrHndl, ViInt16 msgNum,
ViInt16 numWords);

Description:
This Function is used to configure the number of BC Data Words to be transmitted.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Msg number to be configured.
Variable Type: ViInt16.
Valid Range: For superseding commands, wa2701_SUPERSEDING_BC_PAGE_NO (0)
For normal commands, wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs.
where maxMsgNums is obtained by executing the 'wa2701_queryBCPageParams()' Function.
where Msg. No. 0 is the superseding page.
Default Value: 1

numWords

Variable Type: ViInt16
Control Name: numWords
Description: This parameter is used to specify the number of data words of the specified message to be transmitted.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_NUM_WORDS_MIN (0)
wa2701_BC_MSG_NUM_WORDS_MIN (0x21)
Default Value: wa2701_BC_MSG_NUM_WORDS_MIN (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineRTPageModeCodeResponse

Function:
ViStatus wa2701_defineRTPageModeCodeResponse (ViSession instrHndl,
ViInt16 rtNum, ViInt16 pageNum,
ViInt16 modeCode,
ViInt16 responseType,
ViInt32 dataWord);

Description: This Function is used to define RT Mode Code.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to wa2701_RT_PAGE_NUM_MAX (20)
where 0 represents the 'Master Page', and 1 to 20 represent the 'Sub-Pages'.
Both the Master Page and the Sub Pages can be separately enabled or disabled.
Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command
Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

modeCode

Variable Type: ViInt16
Control Name: modeCode
Description: This parameter is used to specify the mode code.
Variable Type: ViInt16
Valid Range: wa2701_RT_RESP_MODE_CODE_MIN (0) to
wa2701_RT_RESP_MODE_CODE_MIN (0x1F)
Default Value: wa2701_RT_RESP_MODE_CODE_MIN (0)

responseType

Variable Type: ViInt16

Control Name: responseType
Description: This parameter is used to specify the Response Type.
Variable Type: ViInt16
Valid Range: wa2701_RT_RESP_REPLY_WITH_JUST_STATUS
wa2701_RT_RESP_DYNAMIC_BUS_CONTROL
wa2701_RT_RESP_RESERVED
wa2701_RT_RESP_TRANSMIT_LAST_COMMAND
wa2701_RT_RESP_REPLY_WITH_STATUS
Default Value: wa2701_RT_RESP_DYNAMIC_BUS_CONTROL

dataWord

Variable Type: ViInt32
Control Name: dataWord
Description: This parameter is used to specify the Data Word to be associated with the specified Mode Code.
Variable Type: ViInt32
Valid Range: wa2701_RT_RESP_DATA_WORD_MIN (0)
wa2701_RT_RESP_DATA_WORD_MAX (0xFFFF)
Default Value: wa2701_RT_RESP_DATA_WORD_MIN (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineRTPageMsgErrors

Function:
ViStatus wa2701_defineRTPageMsgErrors (ViSession instrHndl, ViInt16 rtNum,
ViInt16 pageNum, ViInt16 busError,
ViInt16 wordCountErrors);

Description:
This Function is used to inject Errors into RT messages.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to wa2701_RT_PAGE_NUM_MAX (20)
where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.
Both the Master Page and the Sub Pages can be separately enabled or disabled.
Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command.
Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

busError

Variable Type: ViInt16
Control Name: busError.
Description: This parameter is used to specify the Bus error to be configured.
Variable Type: ViInt16.
Valid Range:

wa2701_RT_DISABLE_BUS_ERROR	[Disable Bus Error]
wa2701_RT_ENABLE_BOTH_BUSES_ERROR	[Enable Both Bus Error]
wa2701_RT_ENABLE_WRONG_BUS_ERROR	[Enable Wrong Bus Error]

Default Value: wa2701_RT_DISABLE_BUS_ERROR.

wordCountErrors

Variable Type: ViInt16
Control Name: wordCountErrors
Description: This parameter is used to specify the Word Count errors to be configured.
Variable Type: ViInt16.
Valid Range: wa2701_RT_DISABLE_WORD_COUNT_ERRORS
wa2701_RT_ENAB_ONE_TOO_FEW_WORDS_ERROR
wa2701_RT_ENAB_ONE_TOO_MANY_WORDS_ERROR

Default Value: wa2701_RT_DISABLE_WORD_COUNT_ERRORS.

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineRTPgSawToothDataFunc

Function:
ViStatus wa2701_defineRTPgSawToothDataFunc (ViSession instrHndl, ViInt16 rtNum,
ViInt16 pageNum,
ViInt16 sawtoothNum,
ViInt32 lowerLimit,
ViInt32 upperLimit,
ViInt32 stepSize);

Description: This Function is used to configure the RT Saw Tooth Data Function

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the RT page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to wa2701_RT_PAGE_NUM_MAX (20)
where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.
Both the Master Page and the Sub-Pages can be separately enabled or disabled.
Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command.
Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

sawtoothNum

Variable Type: ViInt16
Control Name: sawtoothNum
Description: This parameter is used to specify the sawtooth Function number.
Variable Type: ViInt16
Valid Range: wa2701_RT_MSG_FUNCTION_SAW0(0)
wa2701_RT_MSG_FUNCTION_SAW1(1)
wa2701_RT_MSG_FUNCTION_SAW2(2)
Default Value: wa2701_RT_MSG_FUNCTION_SAW0(0)

lowerLimit

Variable Type: ViInt32

Control Name: lowerLimit.
Description: This parameter is used to specify the lower limit of the sawtooth Function.
Variable Type: ViInt32
Valid Range: wa2701_RT_SAWTOOTH_LOWER_RANGE_MIN (0) to wa2701_RT_SAWTOOTH_LOWER_RANGE_MAX (0xFFFF).
Default Value: wa2701_RT_SAWTOOTH_LOWER_RANGE_MIN (0)

upperLimit

Variable Type: ViInt32
Control Name: upperLimit
Description: This parameter is used to specify the upper limit of the sawtooth Function. It must be ensured that the value specified for this parameter is greater than that for the lower limit.
Variable Type: ViInt32
Valid Range: wa2701_RT_SAWTOOTH_UPPER_RANGE_MIN (1) to wa2701_RT_SAWTOOTH_UPPER_RANGE_MAX (0xFFFF).
Default Value: 1

stepSize

Variable Type: ViInt32
Control Name: stepSize
Description: This parameter is used to specify the step size of the sawtooth Function.
Variable Type: ViInt32
Valid Range: wa2701_RT_SAWTOOTH_STEPSIZE_MIN (0) to wa2701_RT_SAWTOOTH_STEPSIZE_MAX (0xFFFF).
Default Value: wa2701_RT_SAWTOOTH_STEPSIZE_MIN (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineTriggerOnErr

Function:
ViStatus wa2701_defineTriggerOnErr (ViSession instrHndl, ViInt16 triggerOnError,
ViInt16 errorType, ViInt16 wordType,
ViInt16 dataWordNum);

Description: This Function is used to define the Trigger on Error.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

triggerOnError

Variable Type: ViInt16
Control Name: triggerOnError
Description: This parameter is used to enable or disable Trigger on Error.
Variable Type: ViInt16
Valid Range: wa2701_BM_ENABLE_TRIG_ON_ERROR [Enable Trigger on Error]
wa2701_BM_DISABLE_TRIG_ON_ERROR [Disable Trigger on Error]
If parameter 'triggerOnError' is 'wa2701_BM_DISABLE_TRIG_ON_ERROR' all other parameters for this Function are neglected.
Default Value: wa2701_BM_ENABLE_TRIG_ON_ERROR

errorType

Variable Type: ViInt16
Control Name: errorType
Description: This parameter is used to specify the Error Condition on which trigger should occur.
Variable Type: ViInt16
Valid Range: wa2701_BM_ERROR_VALUE_MIN (0) to
wa2701_BM_ERROR_VALUE_MAX (0x3FF)

Error Trigger Bits	**Bit**	**Error Type**
	0	Parity
	1	Short Word
	2	Long Word
	3	Manchester
	4	Word Count(too few or too many)
	5	Wrong Bus
	6	Both Buses
	7	Slow response (response > Bus time-out)
	8	No response
	9	Terminal Address
	10	Not Used
	11	Not Used
	12	Not Used
	13	Not Used
	14	Not Used
	15	Not Used

Default Value: wa2701_BM_ERROR_VALUE_MIN (0)

wordType

Variable Type: ViInt16
Control Name: wordType
Description: This parameter is used to specify the Word type to trigger on.
Variable Type: ViInt16

Valid Values:		
	wa2701_BM_TRIGGER_ANY_WORD	Any Word Type
	wa2701_BM_TRIGGER_COMM_WORD	Command Word
	wa2701_BM_TRIGGER_RT_RT_TRANS_WORD	RT-RT Transfer
	wa2701_BM_TRIGGER_STATUS_WORD	Status Word
	wa2701_BM_TRIGGER_DATA_WORD	Data Word
	wa2701_BM_TRIGGER_STAT_MESS_ERR_WORD	Status Message Error Bits

Default Value: wa2701_BM_TRIGGER_ANY_WORD

dataWordNum

Variable Type: ViInt16
Control Name: dataWordNum
Description: This parameter is used to specify the data word number for the specified trigger condition. This parameters is considered when 'wordType' parameter is Data Word, otherwise it is neglected.
Variable Type: ViInt16
Valid Range: wa2701_BM_DATA_WORD_MIN (1) to wa2701_BM_DATA_WORD_MAX (0x20)
Default Value: wa2701_BM_DATA_WORD_MIN (1)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_defineTriggerOnMsgWord

Function:
ViStatus wa2701_defineTriggerOnMsgWord (ViSession instrHndl, ViInt16 wordType,
ViChar wordValue[], ViInt16 dataWordNum);

Description: This Function is used to define trigger on Error Message Word.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

wordType

Variable Type: ViInt16
Control Name: wordType
Description: This parameter is used to specify the Word Type to trigger on.
Variable Type: ViInt16

Valid Values:		
	wa2701_BM_TRIGGER_ANY_WORD	Any Word Type
	wa2701_BM_TRIGGER_COMM_WORD	Command Word
	wa2701_BM_TRIGGER_RT_RT_TRANS_WORD	RT-RT Transfer
	wa2701_BM_TRIGGER_STATUS_WORD	Status Word
	wa2701_BM_TRIGGER_DATA_WORD	Data Word
	wa2701_BM_TRIGGER_STAT_MESS_ERR_WORD	Status Message Error Bits

Default Value: wa2701_BM_TRIGGER_ANY_WORD

wordValue

Variable Type: ViChar []
Control Name: wordValue
Description: This parameter is used to specify the individual bits of the trigger word.
This parameter contains 16 bits, where each bit can be set to 1,0 or X (don't care).
Variable Type: ViChar []
Valid Values: -
Default Value: -

dataWordNum

Variable Type: ViInt16
Control Name: dataWordNum
Description: This parameter is used to specify the Data Word number
for the input trigger condition.
This parameters is considered when 'wordType' parameter
is Data Word, otherwise it is neglected.
Variable Type: ViInt16
Valid Range: wa2701_BM_DATA_WORD_MIN (1) to
wa2701_BM_DATA_WORD_MAX (0x20)
Default Value: wa2701_BM_DATA_WORD_MIN (1)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_enableDisableRTMasterPageData

Function:
ViStatus wa2701_enableDisableRTMasterPageData (ViSession instrHndl,
ViInt16 rtNum, ViInt16 pageNum,ViInt16 rtMasterPageData);

Description: This **F**unction is used to Enable / Disable the Remote Terminal's Master Page Data.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: For 1553A Module: wa2701_1553A_RT_NUM_MIN (0)
For 1553B Module: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to wa2701_RT_PAGE_NUM_MAX (20)
where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.
Both the Master Pages and the Sub Pages can be separately enabled or disabled. Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command. Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

rtMasterPageData

Variable Type: ViInt16
Control Name: rtMasterPageData
Description: This parameter used to enable/disable the Remote Terminal's Master Page Data.
Variable Type: ViInt16
Valid Range: wa2701_RT_MASTER_PAGE_DATA_DISABLE [Disable]
wa2701_RT_MASTER_PAGE_DATA_ENABLE [Enable]
Default Value: wa2701_RT_MASTER_PAGE_DATA_DISABLE [Disable]

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_enableDisableRTSubPage

Function:
ViStatus wa2701_enableDisableRTSubPage (ViSession instrHndl, ViInt16 rtNum,
ViInt16 pageNum, ViInt16 rtSubPage);

Description: This Function is used to enable/disable the Remote Terminal's Sub-Page.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to wa2701_RT_PAGE_NUM_MAX (20)
where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.
Both the Master Page and the Sub Pages can be separately enabled or disabled. Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command. Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

rtSubPage

Variable Type: ViInt16
Control Name: rtSubPage
Description: This parameter is used to enable or disable the Remote Terminal's Sub-Page.
Variable Type: ViInt16
Valid Range: wa2701_RT_SUB_PAGE_DISABLE (0)
wa2701_RT_SUB_PAGE_ENABLE (1)
Default Value: wa2701_RT_SUB_PAGE_DISABLE (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_enableDisableSupersedingCmd

Function:
ViStatus wa2701_enableDisableSupersedingCmd (ViSession instrHndl,
ViInt16 msgNum,
ViInt16 supersedingCmd);

Description: This Function is used to enable or disable the Superseding Command for the specified BC message.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Msg number for which the Superseding Command is to be Enabled or Disabled.
Variable Type: ViInt16.
Valid Range: For superseding commands
wa2701_SUPERSEDING_BC_PAGE_NO (0)

For normal commands
wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs.

where 'maxNumOfBCMsgs' is obtained by executing 'wa2701_queryBCPageParams()' Function.

where Msg. No. 0 is the superseding page.

Default Value: 1

supersedingCmd

Variable Type: ViInt16
Control Name: supersedingCmd
Description: This parameter is used to enable or disable the Superseding command for the specified message.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_SUPERSEDING_CMD_DISABLE
wa2701_BC_MSG_SUPERSEDING_CMD_ENABLE
Default Value: wa2701_BC_MSG_SUPERSEDING_CMD_DISABLE

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_enableDisableTriggerPulse

Function:
ViStatus wa2701_enableDisableTriggerPulse (ViSession instrHndl, ViInt16 msgNum,
ViInt16 triggerPulse);

Description: This Function is used to enable or disable Trigger Pulse on the specified BC Message.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Msg number to be configured.
Variable Type: ViInt16.
Valid Range: wa2701_BC_PAGE_NO_MIN (0) maxNumBcMsgs.

where maxMsgNums is obtained by executing
the 'wa2701_queryBCPageParams()' Function.

Default Value: wa2701_BC_PAGE_NO_MIN (1)

triggerPulse

Variable Type: ViInt16
Control Name: triggerPulse
Description: This parameter is used to Enable or Disable the Trigger Pulse.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_TRIGGER_PULSE_DISABLE
wa2701_BC_MSG_TRIGGER_PULSE_ENABLE
Default Value: wa2701_BC_MSG_TRIGGER_PULSE_DISABLE

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_error_message

Function:
ViStatus wa2701_error_message (ViSession instrHndl, ViStatus error_code,
ViChar error_message[]);

Description: Each driver Function returns a completion code which indicates the status of its attempted operation. This value is in hex and is often difficult to interpret. The same hex value can be input to this Function and the corresponding descriptive error message obtained.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Values: -
Default Value: -

error_code

Variable Type: ViStatus
Control Name: error_code
Description: This parameter specifies the error code whose corresponding error message is to be returned.
Variable Type: ViStatus
Valid Values: -
Default Value: -

error_message

Variable Type: ViChar []
Control Name: error_message
Description: This parameter returns a descriptive account of the error code that is input to this Function.
It must be ensured that this buffer is large enough to hold the Return Value of the Function.
Variable Type: ViChar[]
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_error_query

Function:
ViStatus wa2701_error_query (ViSession instrHndl, ViInt32 *error_number,
ViChar error_string[]);

Description: This Function removes a single entry from the 'error queue' of the instrument and returns the error number and error string components of that error. The error queue is a first in, first out queue where the instrument adds errors as and when they are encountered. So this Function may not return the last encountered error. Instead it returns the first error entry from the error queue.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

error_number

Variable Type: ViInt32 (passed by reference)
Control Name: error_number.
Description: This parameter returns the error number of the first error that is extracted from the error queue.
Variable Type: ViInt32 *
Valid Values: -
Default Value: -

error_string

Variable Type: ViChar []
Control Name: error_string.
Description: This parameter returns a descriptive account of the error entry extracted from the Error Queue. It must be ensured that the character array which is input to this Function is large enough to hold the error string returned by this Function.
Variable Type: ViChar []
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_getOperComplete

Function:
ViStatus wa2701_getOperComplete (ViSession instrHndl, ViInt16 *retOper);

Description: This Function queries the OPC bit in the Event Status Register.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

retOper

Variable Type: ViInt16 (passed by reference)
Control Name: retOper
Description: This returns the value of the OPC bit in the Event Status Register.
A value of 1 will indicate that all the pending operations have been completed.
Variable Type: ViInt16 *
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Returns the completion status of the Function.
Variable Type: ViStatus.

wa2701_init

Function:
ViStatus wa2701_init (ViRsrc instrDesc, ViBoolean id_query, ViBoolean reset_flag,
ViSession *instrHndl);

Description: This Function is used to initialise the SURETEST 2701 instrument and to return a session handle to it. This Function provides options to perform an ID query and to reset the module to its default state.

Parameter List

instrDesc

Variable Type: ViRsrc
Control Name: instrDesc.
Description: An identifier to the instrument. Depending on the value of the identifier, the chassis is searched for the instrument and if found, a session handle to it is obtained. The descriptor is formed based on the logical address of the instrument and the type of interface used to connect to it. If the logical address is set to 32 and a MXI interface is being used, then the descriptor is set as follows:
"VXI::32::INSTR"
Variable Type: ViRsrc
Valid Range: -
Default Value: VXI::?::INSTR
where `?' is the logical address of the instrument whose handle is desired.

id_query

Variable Type: ViBoolean
Control Name: id_query
Description: This parameter informs the Function whether to check the session handle's corresponding manufacturer's ID and model code with that of the Western Avionics 2701 module.
Variable Type: ViBoolean
Valid Range: wa2701_ID_QUERY [Perform ID Query]
wa2701_NO_ID_QUERY [Don't perform ID Query]
Default Value: wa2701_ID_QUERY

reset_flag

Variable Type: ViBoolean
Control Name: reset_flag
Description: This parameter specifies whether or not to perform a soft reset on the instrument before the instrument handle is returned.
Variable Type: ViBoolean
Valid Range: wa2701_RESET [Perform Soft Reset]
wa2701_NO_RESET [Don't perform soft reset]
Default Value: wa2701_RESET

instrHndl

Variable Type: ViSession (passed by reference)
Control Name: instrHndl.
Description: This parameter contains a valid session handle to the instrument. If the Function encounters an error, then this parameter returns a value of zero.
Variable Type: ViSession *
Valid Range: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_mapRTSubaddrToPageAndEnable

Function:
ViStatus wa2701_mapRTSubaddrToPageAndEnable (ViSession instrHndl, ViInt16 rtNum,
ViInt16 pageNum,
ViInt16 subAddress);

Description: This Function is used to enable a specified subaddress of the specified RT.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the
Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to wa2701_1553A_RT_NUM_MAX (0x1F)

For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to wa2701_1553B_RT_NUM_MAX (0x1F)

Default Value: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to wa2701_RT_PAGE_NUM_MAX (20)
where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.
Both the Master Page and the Sub Pages can be separately enabled or disabled.
Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command. Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

subAddress

Variable Type: ViInt16
Control Name: subAddress
Description: This parameter is used to specify the Sub Address which is to be enabled.
Variable Type: ViInt16
Valid Range: For 1553A Module :
wa2701_1553A_RT_SUBADDRESS_MIN (1)
wa2701_1553A_RT_SUBADDRESS_MAX (0x1E)

For 1553B Module :
wa2701_1553B_RT_SUBADDRESS_MIN (0)
wa2701_1553B_RT_SUBADDRESS_MAX (0x1E)

Default Value: wa2701_1553B_RT_SUBADDRESS_MIN (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_queryBCPageParams

Function:
ViStatus wa2701_queryBCPageParams (ViSession instrHndl, ViInt16 *maxNumOfBCMsgs, ViInt16 *maxNumOfLinkPageEntries);

Description: This Function is used to query the BC Page parameters i.e, maximum number of BC messages and maximum number of Link page entries.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

maxNumOfBCMsgs

Variable Type: ViInt16 (passed by reference)
Control Name: maxNoOfBCMsgs
Description: This parameter returns the maximum number of messages that can be defined in the BC.
Variable Type: ViInt16 *
Valid Values: -
Default Value: -

maxNumOfLinkPageEntries

Variable Type: ViInt16 (passed by reference)
Control Name: maxNoOfLinkPageEntries
Description: This parameter returns the maximum number of Link Page Entries that can be defined in the BC.
Variable Type: ViInt16 *
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_queryDeviceStatusReg

Function:
ViStatus wa2701_queryDeviceStatusReg (ViSession instrHndl,
ViInt16 whichStatusReg,
ViInt16 *valueStatusRegister);

Description: This Function reads any of the below mentioned registers within the IEEE488.2 & SCPI status model and returns the current value of the same.

This Function supports reads to the following status registers:

.

(1) Status Byte Register
(2) Event Status Register
(3) Event Status Enable Register
(4) Service Request Enable Register

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

whichStatusReg

Variable Type: ViInt16
Control Name: whichStatusReg
Description: This parameter specifies which of the 4 Status registers are to be queried.
Variable Type: ViInt16

Valid Range:	wa2701_STATUS_BYTE	Status Byte
	wa2701_EVENT_REG	Event Status Reg
	wa2701_EVENT_STATUS_ENABLE	Event Status Enable Reg
	wa2701_SERVICE_REQUEST_ENABLE	Service Req. Enable Reg.
Default Value:	wa2701_STATUS_BYTE	

valueStatusRegister

Variable Type: ViInt16 (passed by reference)
Control Name: valueStatusReg
Description: This parameter returns the contents of the Status register that is read from the instrument.
Variable Type: ViInt16 *
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: Long.

wa2701_queryMonitorStack

Function:
ViStatus wa2701_queryMonitorStack (ViSession instrHndl, ViInt16 trigger,
ViInt16 lineNum, ViInt16 numWordsToTx,
ViInt32 timingBusWord[],
ViInt32 dataBusWord[],
ViInt32 errorBusWord[],
ViInt16 *numOfElements);

Description: This Function returns the Bus Monitor Stack Data.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default: -

trigger

Variable Type: ViInt16
Control Name: trigger
Description: This parameter is used to select Post trigger / Pre trigger Mode.
Variable Type: ViInt16
Valid Range: wa2701_POST_TRIGGER_DATA Post-trigger data
wa2701_PRE_TRIGGER_DATA Pre-trigger data
Default Value: wa2701_POST_TRIGGER_DATA

lineNum

Variable Type: ViInt16
Control Name: lineNum
Description: This parameter is used to define the line number for the start of transmission.
Where 1 represents the line number of the trigger point.
If the post trigger data has been requested, it must be ensured that the value specified by this parameter is within the EOTD(End of Trigger Data)
Valid Range: wa2701_START_LINE_NO_MIN (1) to
wa2701_START_LINE_NO_MAX (10920)
Default Value: wa2701_START_LINE_NO_MIN (1)

numWordsToTx

Variable Type: ViInt16
Control Value: numWordsToTx
Description: This parameter is used to define the number of bus words to be transmitted.
Variable Type: ViInt16
Valid Range: wa2701_NUM_WORDS_TO_TX_MIN (1) to
wa2701_NUM_WORDS_TO_TX_MAX (10920)
Default Value: wa2701_NUM_WORDS_TO_TX_MIN (1)

timingBusWord

Variable Type: ViInt32 []
Control Name: timingBusWord
Description: This buffer is used to store the timing bus words. It must be ensured that the size of this buffer is large enough to hold the Return Value of the Function.
Variable Type: ViInt32[]
Valid Values: -
Default Value: -

dataBusWord

Variable Type: ViInt32 []
Control Name: dataBusWord
Description: This buffer is used to store the data bus words. It must be ensured that the size of this buffer is large enough to hold the Return Value of the Function.
Variable Type: ViInt32[]
Valid Values: -
Default Value: -

errorBusWord

Variable Type: ViInt32 []
Control Name: errorBusWord
Description: This buffer is used to store the error bus words. It must be ensured that the size of this buffer is large enough to hold the Return Value of the Function.
Variable Type: ViInt32[]
Valid Values: -
Default Value: -

numOfElements

Variable Type: ViInt16 (passed by reference)
Control Name: numOfElements
Description: This variable is used to store number of elements present in the output arrays.
Variable Type: ViInt16 *
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: Long.

wa2701_queryRTData

Function:
ViStatus wa2701_queryRTData (ViSession instrHndl, ViInt16 msgNum,
ViInt16 startWordNum, ViInt16 numOfWordsToRead,
ViChar rtData[]);

Description: This Function is used to query RT Status / Data Words value.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify BC Msg number.
Variable Type: ViInt16.
Valid Range: wa2701_BC_PAGE_NO_MIN (0) to maxMsgNums
where maxMsgNums is obtained by executing
the 'wa2701_queryBCPageParams()' Function.
Default Value: wa2701_BC_PAGE_NO_MIN (1)

startWordNum

Variable Type: ViInt16
Control Name: startWordNum
Description: This parameter is used to specify the starting word number of a message from where the RT Data is to be queried for the specified message.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_WORD_MIN (0) to
wa2701_BC_MSG_WORD_MAX (0x21)
Default Value: wa2701_BC_MSG_WORD_MIN (0)

numOfWordsToRead

Variable Type: ViInt16
Control Name: numOfWordsToRead
Description: This parameter is used to specify the number of words whose data word values are to be queried.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_NUM_WORDS_MIN + 1(1) to
wa2701_BC_MSG_NUM_WORDS_MAX + 1(0x22) startWordNum + 1
Default Value: wa2701_BC_MSG_NUM_WORDS_MIN + 1(1)

rtData

Variable Type: ViChar []
Control Name: rtData
Description: This parameter is used to store the result of the Function. The queried data word values of the specified words are concatenated and delimited using comma delimiter. e.g., if the data word values of words 4 and 5 are queried and the instrument returns values of 0xABC and 0x012, then this parameter will return the value as follows: "0xABC,0x012"

Note: If the most recent message had no response from the RT then the string ???? is returned instead of a hex number.

Variable Type: ViChar[]
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_reset

Function:
ViStatus wa2701_reset (ViSession instrHndl);

Description: This Function performs a Soft Reset on the instrument and returns it to its default state.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_revision_query

Function:
ViStatus wa2701_revision_query (ViSession instrHndl, ViChar instr_rev[],
ViChar driver_rev[]);

Description: This Function returns identification information regarding the instrument. It also returns the driver revision.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

instr_rev

Variable Type: ViChar []
Control Name: instr_rev
Description: This parameter returns the identification information of the instrument. The information returned by this Function is in the format: Westinghouse Shannon Ireland, Model 2701/2/3,0,V.cc.bb.rr.mm Where cc.bb.rr.mm are the firmware revision levels, cc is revision level of CPU software, bb is revision level of BC, rr is revision level of RT and mm is revision level of BM.
Variable Type: ViChar [].
Valid Values: -
Default Values: -

driver_rev

Variable Type: ViChar []
Control Name: driver_rev
Description: This output parameter returns the instrument driver revision.
Variable Type: ViChar [].
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_scan_chassis

Function:
ViStatus wa2701_scan_chassis (ViInt16 laArray[], ViInt16 slotArray[],
ViInt16 *numOf2701sFound, ViInt16 *VXI_GPIBFlag);

Description: This Function scans the VXI chassis for all the Western Avionics 2701 modules and returns configuration information regarding the same.

Parameter List

laArray

Variable Type: ViInt16 []
Control Name: laArray
Description: This parameter returns the logical addresses of all the Western Avionics 2701 modules found in the VXI Chassis.
Variable Type: ViInt16[]
Valid Values: -
Default Value: -

slotArray

Variable Type: ViInt16 []
Control Name: slotArray
Description: This parameter returns the Slot Numbers of all the Western Avionics 2701 modules found in the VXI Chassis. There is a one-to-one correspondence between this parameter and the 'laArray' parameter.
Variable Type: ViInt16[]
Valid Values: -
Default Value: -

numOf2701sFound

Variable Type: ViInt16 (passed by reference)
Control Name: numOf2701sFound
Description: This parameter returns the number of 2701 modules found in the VXI chassis.
Variable Type: ViInt16 *
Valid Values: -
Default Value: -

VXI_GPIBFlag

Variable Type: ViInt16 (passed by reference)
Control Name: VXI_GPIBFlag
Description: This parameter returns whether the 2701 modules are connected via an AT-MXI interface or an AT-GPIB interface.
Variable Type: ViInt16 *
Valid Values: wa2701_VXI_CONNECTION (0) AT-MXI Interface
wa2701_GPIB_VXI_CONNECTION(1) AT-GPIB Interface
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_self_test

Function:
ViStatus wa2701_self_test (ViSession instrHndl, ViInt16 *test_result,
ViChar test_message[]);

Description: This Function runs the Self Test on the instrument and returns the result of the same.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

test_result

Variable Type: ViInt16 (passed by reference)
Control Name: test_result
Description: This parameter returns the numeric result of the self test. If a zero is returned then the self test has passed. If any non-zero value is returned the self test has failed.
Variable Type: ViInt16 *
Valid Values: -
Default Values: -

test_message

Variable Type: ViChar []
Control Name: test_message
Description: This parameter returns a descriptive account of the self test. If the self test has passed, then the message returned is "PASSED" else "FAILED".
Variable Type: ViChar[]
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setOperComplete

Function:
ViStatus wa2701_setOperComplete (ViSession instrHndl);

Description: This Function sets the OPC bit in the Event Status Register when all pending operations have completed.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

Return Value

Control Name: status.
Description: Returns the completion status of the Function.
Variable Type: ViStatus.

wa2701_setStatusMask

Function:
ViStatus wa2701_setStatusMask (ViSession instrHndl, ViInt16 serviceReqEnableReg, ViInt16 eventStatusEnableReg);

Description: This Function enables or disables the mask bits which control the status reporting registers on the instrument to control the following :

(1) which bits of the IEEE488.2 Status Byte Register cause the module to generate a 'request for service' to its VXI commander

(2) which bits of the IEEE488.2 Standard Event Status register will cause the ESB bit in the Status Byte Register to be set.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

serviceReqEnableReg

Variable Type: ViInt16
Control Name: serviceReqEnableReg
Description: This parameter is a mask to control which bits of the IEEE488.2 Status Byte Register should cause the module to generate a 'Request for Service' to its VXI commander.
Variable Type: ViInt16
Valid Range: wa2701_SERVICE_REQ_ENAB_MIN (0)
wa2701_SERVICE_REQ_ENAB_MAX (255)
Default Value: wa2701_SERVICE_REQ_ENAB_MIN (0)

eventStatusEnableReg

Variable Type: ViInt16
Control Name: eventStatusEnableReg
Description: This parameter is a mask to control which bits of the IEEE488.2 Standard Event Status Enable register will cause the ESB bit in the Status Byte Register to be set.
Variable Type: ViInt16
Valid Range: wa2701_EVENT_STATUS_ENAB_MIN (0)
wa2701_EVENT_STATUS_ENAB_MAX (255)
Default Value: wa2701_EVENT_STATUS_ENAB_MIN (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: Long.

wa2701_setupBCCmdWord

Function:
ViStatus wa2701_setupBCCmdWord (ViSession instrHndl, ViInt16 msgNum,
ViInt16 rtNum, ViInt16 mode, ViInt16 subAddress,
ViInt16 numOfWords);

Description: This Function is used to configure the BC Command Word for the specified message.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Msg number to be configured.
Variable Type: ViInt16.
Valid Range: For superseding commands
wa2701_SUPERSEDING_BC_PAGE_NO (0)
For normal commands
wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs.
where maxMsgNums is obtained by executing
the 'wa2701_queryBCPageParams()' Function
where Msg. No. 0 is the superseding page.
Default Value: 1

rtNum

Variable Type: ViInt16
Control Name: rtNum
Description: This parameter is used to specify the Remote Terminal number to which the command word is to be sent.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to
wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to
wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: 0

mode

Variable Type: ViInt16
Control Name: mode
Description: This parameter indicates whether the command word to be sent to the specified RT instructs it to transmit/receive data.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_RECEIVE
wa2701_BC_MSG_TRANSMIT
Default Value: wa2701_BC_MSG_TRANSMIT

subAddress

Variable Type: ViInt16
Control Name: subAddress
Description: This parameter is used to specify the RT subaddress where the data is to be transmitted/received.
Variable Type: ViInt16
Valid Range: For 1553A Module :
wa2701_1553A_RT_SUBADDRESS_MIN (1)
wa2701_1553A_RT_SUBADDRESS_MAX (0x1E)

For 1553B Module :
wa2701_1553B_RT_SUBADDRESS_MIN (0)
wa2701_1553B_RT_SUBADDRESS_MAX (0x1E)

Default Value: : 1

numOfWords

Variable Type: ViInt16
Control Name: numOfWords
Description: This parameter is used to specify the number of words to transmit / receive.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_NUM_WORDS_MIN (0) to
wa2701_BC_MSG_NUM_WORDS_MAX (0x21).
Default Value: wa2701_BC_MSG_NUM_WORDS_MIN (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupBCFrameParams

Function:
ViStatus wa2701_setupBCFrameParams (ViSession instrHndl,
ViInt16 noOfMinorFrames,
ViInt16 noOfLinkPageEntries,
ViInt16 minorFrameLength,
ViInt16 startLinkPagePos);

Description: This Function is used to configure the BC Frame parameters.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

noOfMinorFrames

Variable Type: ViInt16
Control Name: noOfMinorFrames
Description: This parameter is used to specify the number of minor frames within the Link Page. The value of noOfMinorFrames * noOfLinkPageEntries cannot exceed the Link Page size as determined by C,B,L? query.
Variable Type: ViInt16
Valid Range: wa2701_BC_MINOR_FRAME_MIN (1) to wa2701_BC_MINOR_FRAME_MAX (32767)
Default Value: wa2701_BC_MINOR_FRAME_MIN (1)

noOfLinkPageEntries

Variable Type: ViInt16
Control Name: noOfLinkPageEntries
Description: This parameter is used to specify the number of Link Page Entries to be configured. The value of noOfMinorFrames * noOfLinkPageEntries cannot exceed the Link Page size as determined by C,B,L? query.
Variable Type: ViInt16
Valid Range: wa2701_BC_LINK_PAGE_ENTRIES_MIN (1) to wa2701_BC_LINK_PAGE_ENTRIES_MAX (32767)
Default Value: wa2701_BC_LINK_PAGE_ENTRIES_MIN (1)

minorFrameLength

Variable Type: ViInt16
Control Name: minorFrameLength
Description: This parameter is used to specify the maximum length of the minor frame.
Variable Type: ViInt16
Valid Range: wa2701_BC_FRAME_LENGTH_MIN (-1) to wa2701_BC_FRAME_LENGTH_MAX (65)
1 in 'minorFrameLength' is used to cancel the effect of F,L command.
Default Value: wa2701_BC_FRAME_LENGTH_MIN (-1)

startLinkPagePos

Variable Type: ViInt16
Control Name: startLinkPagePos
Description: This parameter is used to specify the start position in the link page.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_START_LINK_PAGE_POS (0) to maxBCMsgs where maxMsgNums is obtained by executing the 'wa2701_qryMaxBCMsgs()' Function.
Default Value: wa2701_BC_MSG_START_LINK_PAGE_POS (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupBCMsgDataWords

Function:
ViStatus wa2701_setupBCMsgDataWords (ViSession instrHndl, ViInt16 msgNum,
ViInt16 startWordNum, ViInt16 wordType[],
ViInt32 wordData[], ViInt16 numOfWords);

Description: This Function is used to configure BC Message Data Words.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Msg number that is to be configured.
Variable Type: ViInt16.
Valid Range: For superseding commands
wa2701_SUPERSEDING_BC_PAGE_NO (0)
For normal commands
wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs.
where 'maxMsgNums' is obtained by executing
the 'wa2701_queryBCPageParams()' Function.
where Msg. No. 0 is the superseding page.
Default Value: 1

startWordNum

Variable Type: ViInt16
Control Name: startWordNum
Description: This parameter is used to specify the starting Word number of a message
from where the data is to be defined.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_DATA_WORD_MIN (1) to
wa2701_BC_MSG_DATA_WORD_MAX (0x21)
Default Value: wa2701_BC_MSG_DATA_WORD_MIN (1)

wordType

Variable Type: ViInt16 []
Control Name: wordType
Description: This parameter is used to specify the word types for the words defined.
Variable Type: ViInt16[]
Valid Range: wa2701_BC_MSG_WORD_TYPE_NORMAL (0) (or)
wa2701_BC_MSG_WORD_TYPE_FUNCTION (1)
Default Value: :

wordData

Variable Type: ViInt32 []
Control Name: wordData
Description: This parameter is used to define the normal data word value / Data Function as specified by the corresponding index in the wordType Array.
Variable Type: ViInt32[]
Valid Range: For Normal Words
wa2701_BC_MSG_DATA_WORD_VAL_MIN (0) to
wa2701_BC_MSG_DATA_WORD_VAL_MAX (0xFFFF)

For Functions:
wa2701_BC_MSG_FUNCTION_SAW0 (0)
wa2701_BC_MSG_FUNCTION_SAW1 (1)
wa2701_BC_MSG_FUNCTION_SAW2 (2)
wa2701_BC_MSG_FUNCTION_RAND (3)
Default Value: -

numOfWords

Variable Type: ViInt16
Control Name: numOfWords
Description: This is to specify the number of words to be defined.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_NUM_WORDS_MIN (1)
wa2701_BC_MSG_NUM_WORDS_MAX - startWordNum + 1
Where 'startWordNum' is input parameter to the Function & it is the starting number from where the user has to define the data words.
Default Value: : wa2701_BC_MSG_NUM_WORDS_MIN (1)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupBCMsgParams

Function:
ViStatus wa2701_setupBCMsgParams (ViSession instrHndl, ViInt16 msgNum,
ViInt16 transmissionAmplitude,
ViInt16 transmissionBus, ViInt16 img,
ViInt16 imgUnits, ViInt32 bto,
ViInt16 waitFlag, ViInt32 delay);

Description: This Function is used to configure the BC Msg parameters.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Message number to be configured.
It must be noted that for a superseding page, only the Amplitude, the Bus and the Delay parameters will be considered.
Variable Type: ViInt16.
Valid Range: For superseding commands
wa2701_SUPERSEDING_BC_PAGE_NO (0)
For normal commands
wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs.
where 'maxMsgNums' is obtained by executing
the 'wa2701_queryBCPageParams()' Function.
where Msg. No. 0 is the superseding page.
Default Value: 1

transmissionAmplitude

Variable Type: ViInt16
Control Name: transmissionAmplitude.
Description: This parameter is used to specify transmission amplitude.
Variable Type: ViInt16.
Valid Range: wa2701_BC_MSG_TRANS_AMPLITUDE_MIN (0) to
wa2701_BC_MSG_TRANS_AMPLITUDE_MAX (20)
Default Value: wa2701_BC_MSG_TRANS_AMPLITUDE_MIN (0)

transmissionBus

Variable Type: ViInt16
Control Name: transmissionBus.
Description: This parameter is used to specify the bus on which the data is to be transferred.
Variable Type: ViInt16.
Valid Range: For Superseding Page:
wa2701_BC_MSG_PRI_BUS (Primary Bus)
wa2701_BC_MSG_SEC_BUS (Secondary Bus)
For Normal Pages:
wa2701_BC_MSG_PRI_BUS (Primary Bus)
wa2701_BC_MSG_SEC_BUS (Secondary Bus)
wa2701_BC_MSG_BOTH_BUS (Both Buses)
Default Value: wa2701_BC_MSG_PRI_BUS Primary Bus

img

Variable Type: ViInt16
Control Name: img.
Description: This is to specify the Inter Message Gap. The value of this parameter is interpreted to in expressed in milliseconds or microseconds depending on the value specified by the 'imgUnits' parameter.
Variable Type: ViInt16
Valid Range: For 1553B Module :
wa2701_1553B_BC_MSG_IMG_MIN (10) to
wa2701_1553B_BC_MSG_IMG_MAX (30000)
For 1553A Module :
wa2701_1553A_BC_MSG_IMG_MIN (8) to
wa2701_1553A_BC_MSG_IMG_MAX (30000)
Default Value: wa2701_1553B_BC_MSG_IMG_MIN (10)

imgUnits

Variable Type: ViInt16
Control Name: imgUnits.
Description: This parameter specifies whether the Inter message gap specified by the parameter 'img' is to be interpreted to be expressed in 'milliseconds' or 'microseconds'. This parameter is considered only for non-superseding messages.
Variable Type: ViInt16
Valid Range: wa2701_UNIT_MILLI Milliseconds
wa2701_UNIT_MICRO Microseconds
Default Value: wa2701_UNIT_MILLI Milliseconds

bto

Variable Type: ViInt32
Control Name: bto.
Description: This parameter specifies the Bus Time Out that is to be set. This parameter is used only when Superseding Command is not applicable(i.e, msgNum !=0)
This parameter is interpreted to be in `microseconds'
Variable Type: ViInt32.
Valid Range: For 1553B Module :
wa2701_1553B_BC_MSG_BTO_MIN (14) to
wa2701_1553B_BC_MSG_BTO_MAX (59,999)
For 1553A Module :
wa2701_1553A_BC_MSG_BTO_MIN (10) to
wa2701_1553A_BC_MSG_BTO_MAX (59,999)
Default Value: wa2701_1553B_BC_MSG_BTO_MIN (14)

.

waitFlag

Variable Type: ViInt16
Control Name: waitFlag
Description: This is used to allow the user software to synchronise with a particular command on the 1553 Bus. This parameter is considered only for non-superseding messages.
Variable Type: ViInt16.
Valid Range: wa2701_BC_MSG_NO_WAIT [No Wait]
wa2701_BC_MSG_WAIT[Wait]
Default Value: wa2701_BC_MSG_NO_WAIT.

delay

Variable Type: ViInt32
Control Name: delay.
Description: This parameter is applicable only for Superseding commands (i.e., when msgNum is 0) The value of this parameter is interpreted to be in multiples of 0.5 microseconds.
Variable Type: ViInt32.
Valid Range: wa2701_BC_MSG_SUPERSEDING_DELAY_MIN (4) to wa2701_BC_MSG_SUPERSEDING_DELAY_MAX (59999) in multiples of 0.5 microseconds.
Default Value: wa2701_BC_MSG_SUPERSEDING_DELAY_MIN (4)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupBCMsgWordErrors

Function:
ViStatus wa2701_setupBCMsgWordErrors (ViSession instrHndl, ViInt16 msgNum,
ViInt16 dataWordNum[],
ViInt16 errorValue[], ViInt16 numOfWords);

Description: This Function is used to inject BC message Word Errors.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the BC Msg number to be configured.
Variable Type: ViInt16.
Valid Range: For superseding commands
wa2701_SUPERSEDING_BC_PAGE_NO (0)
For normal commands
wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs.
where maxMsgNums is obtained by executing
the 'wa2701_queryBCPageParams()' Function.
where Msg. No. 0 is the superseding page.
Default Value: 1

dataWordNum

Variable Type: ViInt16 []
Control Name: dataWordNum
Description: This parameter is used to specify the Data Word / Command Word where the specified error is to be injected.
Variable Type: ViInt16[].
Valid range: Each element in the array must be in the range
wa2701_BC_MSG_WORD_MIN (0) to
wa2701_BC_MSG_WORD_MAX (0x21)
Default Value: wa2701_BC_MSG_WORD_MIN (0)

errorValue

Variable Type: ViInt16 []
Control Name: errorValue.
Description: This parameter is used to specify the type of error(s) should be injected into the word specified.
Variable Type: ViInt16[].
Valid range: Each element of the array should be in the range
wa2701_BC_MSG_ERROR_MIN (0) to
wa2701_BC_MSG_ERROR_MAX (0x17)
This parameter is a bit stream value.
The bit mapping is as specified below.

BIT NUMBER	BIT VALUE	ERROR TYPE
0	0	Disable Parity Error
0	1	Enable Parity Error
1	0	Disable Sync Error
1	1	Enable Sync Error
2	0	Disable Manchester Error
2	1	Enable Manchester Error
3 & 4	00	Disable Wordcount Error
3 & 4	01	Enable Short Word Error
3 & 4	10	Enable Long Word Error

Both Long Word and Short Word errors can't be simultaneously injected into the Data Word /Command Word.

Default Value: wa2701_BC_MSG_ERROR_MIN (0)

numOfWords

Variable Type: ViInt16
Control Name: numOfWords
Description: This parameter is used to specify the number of words into which the specified errors are to be injected.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_NUM_WORDS_MIN (1) to
wa2701_BC_MSG_NUM_WORDS_MAX (0x22)
Default Value: wa2701_BC_MSG_NUM_WORDS_MIN (1)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupBCPageParams

Function

ViStatus wa2701_setupBCPageParams (ViSession instrHndl, ViInt16 maxNoOfBCMsgs, ViInt16 maxNoOfLinkPageEntries);

Description: This Function is used to configure the maximum number of BC messages and maximum number of Link Page Entries which may be defined in the BC.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

maxNoOfBCMsgs

Variable Type: ViInt16
Control Name: maxNoOfBCMsgs
Description: This parameter is used to specify the maximum number of BC messages that can be defined.
Variable Type: ViInt16
Valid Range: wa2701_BC_PAGE_NO_MIN (0) to wa2701_BC_PAGE_NO_MAX (401)
Default Value: wa2701_BC_PAGE_NO_MIN (1)

maxNoOfLinkPageEntries

Variable Type: ViInt16
Control Name: maxNoOfLinkPageEntries
Description: This parameter is used to specify the maximum number of Link Page Entries that can be defined in the BC. For a link page greater than 509, the parameters must satisfy the inequality ((160 * maxNumOfBCMsgs) + (2 * maxNoOfLinkPageEntries)) < 64304
If the inequality is not satisfied for a link page greater than 509, an error is generated by the Function.
Variable Type: ViInt16
Valid Range: wa2701_BC_MSG_LINK_PAGE_MIN (0) to wa2701_BC_MSG_LINK_PAGE_MAX (30000)
Default Value: wa2701_BC_MSG_LINK_PAGE_MIN (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupBMParams

Function
ViStatus wa2701_setupBMParams (ViSession instrHndl, ViInt16 mode, ViInt16 ptc,
ViInt32 bto, ViInt16 preTriggerBuffSize);

Description: This Function is used to setup BM Parameters. This configures parameters like Mode (Continuous / Window),Bus Time Out, Post Trigger Count, and Pre trigger buffer size.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

mode

Variable Type: ViInt16
Control Name: mode
Description: This parameter is used to select the Window or Continuous mode.
Variable Type: ViInt16
Valid Values: wa2701_BM_CONTINUOUS_MODE Continuous Mode
wa2701_BM_WINDOW_MODE Window Mode
Default Value: wa2701_BM_CONTINUOUS_MODE Continuous Mode

ptc

Variable Type: ViInt16
Control Name: ptc
Description: This parameter is used to specify the Post Trigger Count value.
Variable Type: ViInt16
Valid Range: wa2701_BM_POST_TRIG_COUNT_MIN (0) to
wa2701_BM_POST_TRIG_COUNT_MAX (10920)
Default Value: wa2701_BM_POST_TRIG_COUNT_MIN (0)

bto

Variable Type: ViInt32
Control Name: bto
Description: This parameter specifies the Bus Time Out that is to be set.
This parameter is interpreted to be in `microseconds'
Variable Type: ViInt32
Valid Range: For 1553A Mode:
wa2701_BM_BUS_TIME_OUT_1553A_MIN (10) to
wa2701_BM_BUS_TIME_OUT_1553A_MAX (59999)

For 1553B Mode:
wa2701_BM_BUS_TIME_OUT_1553B_MIN (14) to
wa2701_BM_BUS_TIME_OUT_1553B_MAX (59999)
Default Value: 14

preTriggerBuffSize

Variable Type: ViInt16
Control Name: preTriggerBuffSize
Description: This parameter is used to define the size of the buffer in Msg words.
Variable Type: ViInt16
Valid Range: wa2701_SET_BM_TO_TRIG_MODE (0)
wa2701_BM_SET_BUFF_SIZE_32KB (1)
wa2701_BM_SET_BUFF_SIZE_MIN (2) to
wa2701_BM_SET_BUFF_SIZE_MAX (5461)
Default Value: wa2701_SET_BM_TO_TRIG_MODE (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupRTPageDataWordErrors

Function:
ViStatus wa2701_setupRTPageDataWordErrors (ViSession instrHndl, ViInt16 rtNum,
ViInt16 pageNum,
ViInt16 dataWordNum[],
ViInt16 errorValue[],
ViInt16 numOfWords);

Description: This Function is used to inject errors into the specified RT's Data Words / Status Word.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to
wa2701_1553A_RT_NUM_MAX (0x1F)

For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to
wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to
wa2701_RT_PAGE_NUM_MAX (20)

where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.

Both the Master Pages and the Sub Pages can be separately enabled or disabled. Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command. Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

dataWordNum

Variable Type: ViInt16 []
Control Name: dataWordNum
Description: This parameter is used to specify the data word numbers where the error is injected. 'dataWordNum' ranges from 0 to 0x21, 0 represents the Status word and 0x1 to 0x21 represent data words.
Variable Type: ViInt16[]
Valid Range: wa2701_RT_STATUS_WORD (0) to wa2701_RT_DATA_WORD_MAX (0x21).
Default Value: -

errorValue

Variable Type: ViInt16 []
Control Name: errorValue
Description: This parameter is used to specify the type of error that should be injected into the specified words.
Variable Type: ViInt16[]
Valid Range: wa2701_RT_DATA_ERROR_MIN (0) to wa2701_RT_DATA_ERROR_MAX (0x17).

This parameter is a bit stream. The bit mapping is as specified below.

BIT NUMBER	BIT VALUE	ERROR TYPE
0	0	Disable Parity Error
0	1	Enable Parity Error
1	0	Disable Sync Error
1	1	Enable Sync Error
2	0	Disable Manchester Error
2	1	Enable Manchester Error
3 & 4	00	Disable Wordcount Error
3 & 4	01	Enable Short Word Error
3 & 4	10	Enable Long Word Error

Both Long Word and Short Word errors can't be simultaneously injected into the Data Word /Status Word.

Default Value: -

numOfWords

Variable Type: ViInt16
Control Name: numOfWords
Description: This parameter is used to specify the number of words into which the errors are to be injected.
Variable Type: ViInt16
Valid Range: wa2701_RT_MSG_NUM_WORDS_MIN (1) to wa2701_RT_MSG_NUM_WORDS_MAX (0x22)
Default Value: wa2701_RT_MSG_NUM_WORDS_MIN (1)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupRTPageMsgDataWords

Function:
ViStatus wa2701_setupRTPageMsgDataWords (ViSession instrHndl, ViInt16 rtNum,
ViInt16 pageNum, ViInt16 startWordNum,
ViInt16 wordType[], ViInt32 wordData[],
ViInt16 numOfWords);

Description: This Function is used to configure the RT Page Data Words

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to
wa2701_1553A_RT_NUM_MAX (0x1F)

For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to
wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to
wa2701_RT_PAGE_NUM_MAX (20)

where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.

Both the Master Page and the Sub Pages can be separately enabled or disabled. Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command. Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

startWordNum

Variable Type: ViInt16
Control Name: startWordNum.
Description: This parameter is used to specify the starting data word number from where the data is to be defined.
Variable Type: ViInt16
Valid Range: wa2701_RT_DATA_WORD_MIN (1) to
wa2701_RT_DATA_WORD_MAX (0x21)
Default Value: wa2701_RT_DATA_WORD_MIN (1)

wordType

Variable Type: ViInt16 []
Control Name: wordType
Description: This parameter is used to specify the word types of the words being defined.
Variable Type: ViInt16[]
Valid Range: wa2701_RT_MSG_WORD_TYPE_N (0) (Normal) or
wa2701_RT_MSG_WORD_TYPE_F (1) (Function)
Default Value: -

wordData

Variable Type: ViInt32 []
Control Name: wordData
Description: This parameter is used to specify the data word values for number of data words defined by 'numOfWords' variable starting from the 'startWordNum'.
Variable Type: ViInt32[]
Valid Range: For Normal Words:
wa2701_RT_MSG_DATA_WORD_VAL_MIN (0) to
wa2701_RT_MSG_DATA_WORD_VAL_MAX (0xFFFF)

For Functions:
wa2701_RT_MSG_FUNCTION_SAW0 (0) (Sawtooth 1)
wa2701_RT_MSG_FUNCTION_SAW1 (1) (Sawtooth 2)
wa2701_RT_MSG_FUNCTION_SAW2 (2) (Sawtooth 3)
wa2701_RT_MSG_FUNCTION_RAND (3) (Random)
Default Value: -

numOfWords

Variable Type: ViInt16
Control Name: numOfWords
Description: This is to specify the number of data words to be defined.
Variable Type: ViInt16
Valid Range: wa2701_RT_DATA_WORD_MIN (1) to
wa2701_RT_DATA_WORD_MAX (0x21) startWordNum + 1
Default Value: wa2701_RT_DATA_WORD_MIN (1)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupRTPageParams

Function:
ViStatus wa2701_setupRTPageParams (ViSession instrHndl, ViInt16 rtNum,
ViInt16 pageNum, ViInt16 respAmplitude,
ViInt16 respTime);

Description: This Function is used to configure the RT Page parameters.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to
wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to
wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: 0

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to
wa2701_RT_PAGE_NUM_MAX (20)

where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.
Both the Master Page and the Sub Pages can be separately enabled or disabled.
Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command. Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

respAmplitude

Variable Type: ViInt16
Control Name: respAmplitude
Description: This parameter is used to specify the Response Amplitude.
Variable Type: ViInt16
Valid Range: wa2701_RT_RESP_AMPLITUDE_MIN (0) to
wa2701_RT_RESP_AMPLITUDE_MAX (20)
Default Value: wa2701_RT_RESP_AMPLITUDE_MIN (0)

respTime

Variable Type: ViInt16
Control Name: respTime
Description: This parameter specifies the Response Time that is to be set.
This parameter is interpreted to be in `microseconds' e.g., if a value of 5 were specified for this parameter, this Function would interpret the Response Time to be configured as 5 microseconds.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_RESP_TIME_MIN (2) to
wa2701_1553A_RT_RESP_TIME_MAX (97)

For 1553B Module:
wa2701_1553B_RT_RESP_TIME_MIN (4) to
wa2701_1553B_RT_RESP_TIME_MAX (99)
Default Value: 4

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupRTPageStatusWord

Function

ViStatus wa2701_setupRTPageStatusWord (ViSession instrHndl, ViInt16 rtNum,
ViInt16 pageNum, ViInt16 msgError,
ViInt16 instrumentation,
ViInt16 serviceReq,
ViInt16 broadcastCommRcvd, ViInt16 busy,
ViInt16 subsystemFlag,
ViInt16 dynamicBusAccept,
ViInt16 terminal);

Description: : This Function is used configure the RT Status Word.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be configured.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to
wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to
wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: wa2701_1553B_RT_NUM_MIN (0)

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be configured.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to
wa2701_RT_PAGE_NUM_MAX (20)
where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.
Both the Master Pages and the Sub Pages can be separately enabled or disabled.
Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command. Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: : wa2701_RT_PAGE_NUM_MIN (0).

msgError

Variable Type: ViInt16
Control Name: msgError
Description: This parameter is used to set / clear the Message Error bit of the Status Word.
Variable Type: ViInt16
Valid Range: wa2701_RT_STAT_WORD_MSG_ERROR_ENAB
wa2701_RT_STAT_WORD_MSG_ERROR_DISAB
Default Value: wa2701_RT_STAT_WORD_MSG_ERROR_DISAB

instrumentation

Variable Type: ViInt16
Control Name: instrumentation
Description: This parameter is used to set / clear the instrumentation bit of the Status Word.
Variable Type: ViInt16
Valid Range: wa2701_RT_STAT_WORD_INST_ENAB
wa2701_RT_STAT_WORD_INST_DISAB
Default Value: wa2701_RT_STAT_WORD_INST_DISAB

serviceReq

Variable Type: ViInt16
Control Name: serviceReq
Description: This parameter is used to set / clear the Service Request bit of the Status Word.
Variable Type: ViInt16
Valid Range: wa2701_RT_STAT_WORD_SERVICE_REQ_ENAB
wa2701_RT_STAT_WORD_SERVICE_REQ_DISAB
Default Value: wa2701_RT_STAT_WORD_SERVICE_REQ_DISAB

broadcastCommRcvd

Variable Type: ViInt16
Control Name: broadcastCommRcvd
Description: This parameter is used to set / clear the broadcast command received bit of the Status Word.
Variable Type: ViInt16
Valid Range: wa2701_RT_STAT_WORD_BRDCST_COMM_RCVD_ENAB
wa2701_RT_STAT_WORD_BRDCST_COMM_RCVD_DISAB
Default Value: wa2701_RT_STAT_WORD_BRDCST_COMM_RCVD_ENAB

busy

Variable Type: ViInt16
Control Name: busy
Description: This parameter is used to set / clear the busy bit of the Status Word.
Variable Type: ViInt16
Valid Range: wa2701_RT_STAT_WORD_BUSY_ENAB
wa2701_RT_STAT_WORD_BUSY_DISAB
Default Value: wa2701_RT_STAT_WORD_BUSY_DISAB

subsystemFlag

Variable Type: ViInt16
Control Name: subsystemFlag
Description: This parameter is used to set / clear the Subsystem Flag bit of the Status Word.
Variable Type: ViInt16
Valid Range: wa2701_RT_STAT_WORD_SUBSYSTEM_FLAG_ENAB
wa2701_RT_STAT_WORD_SUBSYSTEM_FLAG_DISAB
Default Value: wa2701_RT_STAT_WORD_SUBSYSTEM_FLAG_DISAB

dynamicBusAccept

Variable Type: ViInt16
Control Name: dynamicBusAccept
Description: Parameter used to set / clear the Dynamic Bus Acceptance bit of the Status Word.
Variable Type: ViInt16
Valid Range: wa2701_RT_STAT_WORD_DYNAMIC_BUS_ACCEPT_ENAB
wa2701_RT_STAT_WORD_DYNAMIC_BUS_ACCEPT_DISAB
Default Value: wa2701_RT_STAT_WORD_DYNAMIC_BUS_ACCEPT_DISAB

terminal

Variable Type: ViInt16
Control Name: terminal
Description: This parameter is used to set / clear the terminal bit of the Status Word.
Variable Type: ViInt16
Valid Range: wa2701_RT_STAT_WORD_TERMINAL_ENAB
wa2701_RT_STAT_WORD_TERMINAL_DISAB
Default Value: wa2701_RT_STAT_WORD_TERMINAL_DISAB

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_setupRunMonitorBCToRTTx

Function:
ViStatus wa2701_setupRunMonitorBCToRTTx (ViSession instrHndl, ViInt16 msgNum,
ViInt16 rtNum, ViInt16 subAddress,
ViInt16 pageNum);
`

Description: This Function is Setup , Run and Monitor the Data that is transmitted from BC to RT.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

msgNum

Variable Type: ViInt16
Control Name: msgNum.
Description: This parameter is used to specify the number of BC message page to be setup. Valid Range is 1 to 320. Should more than 320 BC message pages be required, this may be increased to maximum value of 401 (wa2701_BC_PAGE_NO_MAX), using the CBM configuration change command, prior to defining a BC page in excess of the default limit.
Variable Type: ViInt16.
Valid Range: For superseding commands
wa2701_BC_SUPERSEDING_PAGE_NO (0)
For normal commands
wa2701_BC_PAGE_NO_MIN (0) to maxNumBcMsgs.
where 'maxNumOfBCMsgs' is obtained by executing
'wa2701_queryBCPageParams' Function.
Default Value: wa2701_BC_PAGE_NO_MIN (1)

rtNum

Variable Type: ViInt16
Control Name: rtNum.
Description: This parameter is used to specify the Remote Terminal number to be selected.
Variable Type: ViInt16
Valid Range: For 1553A Module:
wa2701_1553A_RT_NUM_MIN (0) to
wa2701_1553A_RT_NUM_MAX (0x1F)
For 1553B Module:
wa2701_1553B_RT_NUM_MIN (0) to
wa2701_1553B_RT_NUM_MAX (0x1F)
Default Value: wa2701_1553B_RT_NUM_MIN (0)

subAddress

Variable Type: ViInt16
Control Name: subAddress
Description: This parameter is used to specify the Sub Address to which a RT Page is to be associated.
Variable Type: ViInt16
Valid Range: For BC:
wa2701_BC_MSG_SUB_ADDRESS_MIN (0) to
wa2701_BC_MSG_SUB_ADDRESS_MAX (32).

For RT in 1553A Mode.
wa2701_1553A_RT_SUBADDRESS_MIN (1)
wa2701_1553A_RT_SUBADDRESS_MAX (0x1E).

For RT in 1553B Mode.
wa2701_1553B_RT_SUBADDRESS_MIN (0)
wa2701_1553B_RT_SUBADDRESS_MAX (0x1E).

Default Value: -

pageNum

Variable Type: ViInt16
Control Name: pageNum
Description: This parameter is used to specify the page number to be changed.
Variable Type: ViInt16
Valid Range: wa2701_RT_PAGE_NUM_MIN (0) to
wa2701_RT_PAGE_NUM_MAX (20)

where 0 represents the 'Master Page' and 1 to 20 represent the 'Sub-Pages'.
Both the Master Page and the Sub Pages can be separately enabled or disabled.
Any RT master page not enabled will cause no response to be returned when that RT is addressed by a command. Any RT Sub address not enabled will transmit the data in the master page transmit data block, provided that the master page is enabled.
Default Value: wa2701_RT_PAGE_NUM_MIN (0).

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_startStopBC

Function:
ViStatus wa2701_startStopBC (ViSession instrHndl, ViInt16 startStopFlag,
ViInt32 count);

Description: : This Function is used to Start (Load) / Stop the Bus Controller.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

startStopFlag

Variable Type: ViInt16
Control Name: startStopFlag
Description: This parameter is used to Start(Load) or Stop the Bus Controller.
Variable Type: ViInt16
Valid Values: wa2701_BC_MSG_START [Start]
wa2701_BC_MSG_STOP [Stop]
Default Value: wa2701_BC_MSG_START

count

Variable Type: ViInt32
Control Name: count
Description: This parameter is used to transmit the entire contents of the Link Page for a defined number of times or forever.
Variable Type: ViInt32
Valid Values: wa2701_BC_TX_FOREVER (0)
(OR)
wa2701_BC_MSG_START_COUNT_MIN (1) to
wa2701_BC_MSG_START_COUNT_MAX (59999)

where 'wa2701_BC_TX_FOREVER' indicates transmit forever.

Default Value: : wa2701_BC_TX_FOREVER (0)

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_startStopBM

Function:
ViStatus wa2701_startStopBM (ViSession instrHndl, ViInt16 startStopFlag);

Description: This is used to Start (Load) / Stop the Bus Monitor.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: : instrHndl.
Description: : A valid session handle to the instrument.
Variable Type: : ViSession
Valid Range: : -
Default Value: : -

startStopFlag

Variable Type: ViInt16
Control Name: startStopFlag
Description: This parameter is used to Start (Load) or Stop the Bus Monitor.
Variable Type: ViInt16
Valid Values: wa2701_BM_MSG_START [Start (Load) BM]
wa2701_BM_MSG_STOP [Stop BM]
Default Value: wa2701_BM_MSG_START

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_startStopRT

Function:
ViStatus wa2701_startStopRT (ViSession instrHndl, ViInt16 startStopFlag);

Description: This Function is used to Start (Load) / Stop Remote Terminal(s).

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl.
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Range: -
Default Value: -

startStopFlag

Variable Type: ViInt16
Control Name: startStopFlag
Description: This parameter is used to Start(Load) or Stop the Remote Terminal(s).
Variable Type: ViInt16
Valid Values: wa2701_RT_MSG_START [Start (Load) RT]
wa2701_RT_MSG_STOP [Stop RT]
Default Value: wa2701_RT_MSG_START

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

wa2701_wait

Function
ViStatus wa2701_wait (ViSession instrHndl);

Description: The Wait To Continue command halts the execution of commands and queries until the No Operation Pending message is true. The Wait To Continue command makes sure that all previous commands have been executed before processing. It provides a way of synchronising the module with its master.

Parameter List

instrHndl

Variable Type: ViSession
Control Name: instrHndl
Description: A valid session handle to the instrument.
Variable Type: ViSession
Valid Values: -
Default Value: -

Return Value

Control Name: status.
Description: Displays the results of the Function call.
Variable Type: ViStatus.

A

B

C

D

E

S

T

U

V

W