



TANGO Device Server

single icv150 Adc channel User's Guide

SAdc150 Class

Revision: SAdc150-Release_1_1_0 - Author: vedder
Implemented in C++ - CVS repository: ESRF

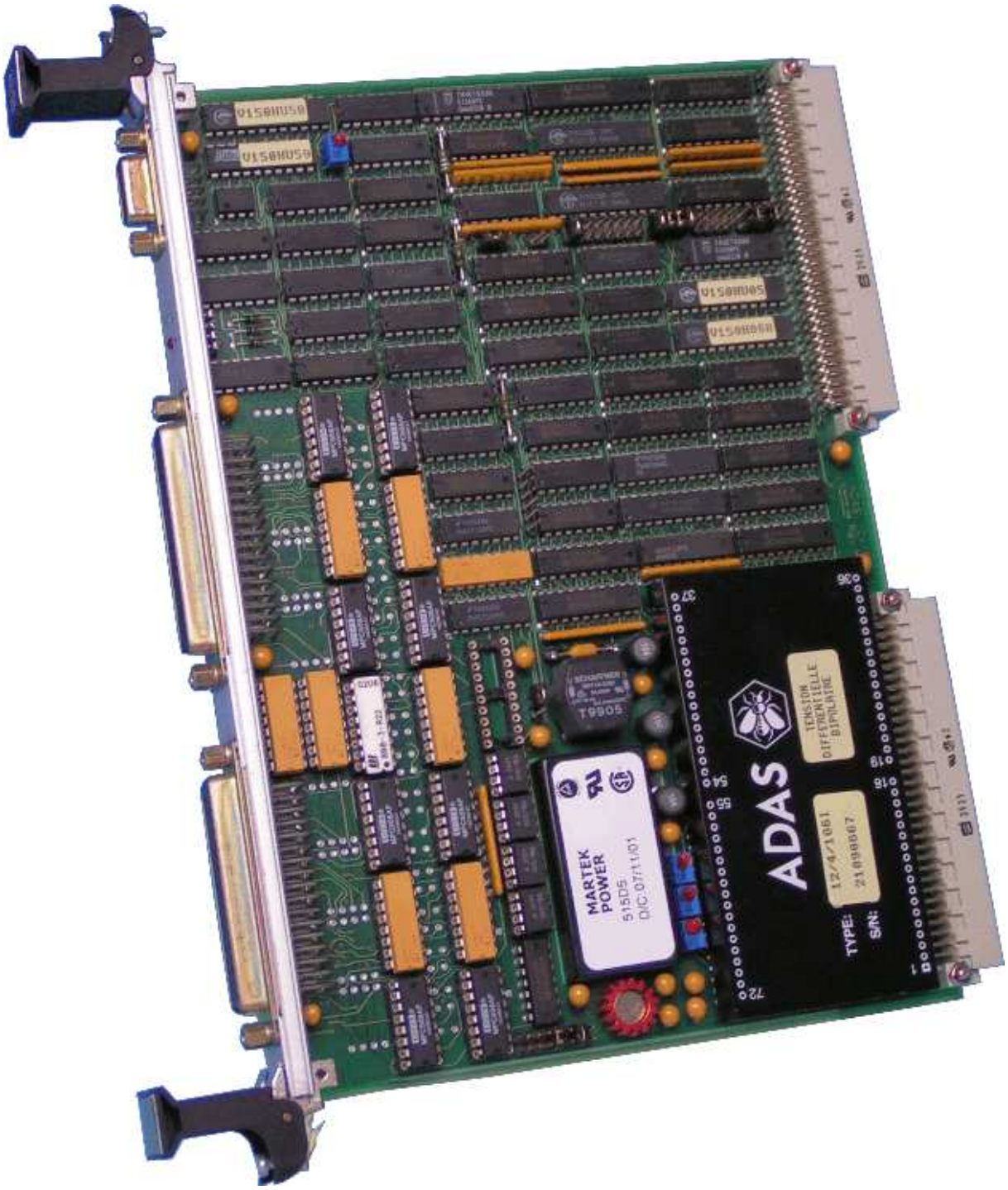
Introduction:

This device server will control any channel of the ADAS ICV150 analog to digital converter board.

Class Inheritance:

- Tango::DeviceImpl
  - Adc
    - SAdc150

Class Description:



The SAdc150 device server was developped to control any channel of the ADAS ICV150 analog to digital converter board.
The ICV150 is one slot 6U VME board (produced by ADAS), performing analog to digital conversion of 32 differential or 64 single resident inputs.
It has wide range of hybrid modules for the analog part which gives different combinations (isolated or not, voltage or current input, 12, 14 or 16 bit accuracy).

Properties:

Device Properties		
Property name	**Property type**	**Description**
Channel	Tango::DEV_SHORT	Number of the channel (starting from 0, max value corresponds to the max number of channels supported by the card minus one. This is a mandatory property. The server will not continue the startup if not set.
Gain	Tango::DEV_SHORT	Defines the gain. The max value is defined by the type of the hybrid module.
Card	Tango::DEV_STRING	Name of the icv150 board device (Adc150 class). Through this property, the link is made between the card (device descriptor, hybrid module) and the channel. This is a mandatory property, the server will not continue the startup if not set.
A0	Tango::DEV_DOUBLE	The first coefficient of the formula: a0+a1x+a2x^2+a3x^3 where x is the card output. This property is optional and is set to 0 by default.
A1	Tango::DEV_DOUBLE	The second coefficient of the formula: a0+a1x+a2x^2+a3x^3 where x is the card output. This property is optional and is set by default to 1.
A2	Tango::DEV_DOUBLE	The third coefficient of the formula: a0+a1x+a2x^2+a3x^3 where x is the card output. This property is optional and is set by default to 0.
A3	Tango::DEV_DOUBLE	The fourth coefficient of the formula: a0+a1x+a2x^2+a3x^3 where x is the card output. This property is optional and is set by default to 0.
Calc_type	Tango::DEV_STRING	Type of formula used to calculate the value attribute. (could be "POLYNOM" or "POW10"). Set by default to "POLYNOM".
Calibrated	Tango::DEV_SHORT	When this property is different from 0, the channel is considered as calibrated and a certain number of attributes cannot be changed anymore. (e.g. a0,a1,a2,a3,calc_type) The goal is to avoid undesired change when the calibration process has been performed.

Device Properties Default Values:

Property Name	**Default Values**
Channel	No default value
Gain	No default value
Card	No default value
A0	No default value
A1	No default value
A2	No default value
A3	No default value
Calc_type	No default value
Calibrated	No default value

There is no Class properties.

Attributes:

Scalar Attributes			
Attribute name	**Data Type**	**R/W Type**	**Expert**
Value	DEV_DOUBLE	READ	No
Gain: The gain value is programmable as a multiple of 2, and the 'value' parameter and the gain have the following correspondence: value gain ------- ------ 0 1 1 2 2 4 3 8 4 16 5 32 6 64 7 128 8 256 9 512 10 1024	DEV_SHORT	READ	Yes
a0: the first coefficient of the formula choosen with the attribute calc_type.	DEV_DOUBLE	READ_WRITE	Yes
a1: the second coefficient of the formula choosen with the calc_type attribute.	DEV_DOUBLE	READ_WRITE	Yes
a2: The third coefficient of the formula choosen with the calc_type attribute.	DEV_DOUBLE	READ_WRITE	Yes
a3: The fourth coefficient of the formula choosen with the calc_type attribute.	DEV_DOUBLE	READ_WRITE	Yes
calc_type: Type of formula used to calculate the value attribute. could be set to POLYNOM or POW10. POLYNOM: the formula used is : a0 + a1X + a2X^2 + a3X^3 POW10: the formula is : a0 + a1*10^(a2 + a3*X))	DEV_STRING	READ_WRITE	Yes
NAverage: number of values to average	DEV_SHORT	WRITE	No

Commands:

More Details on commands....

Device Commands for Operator Level		
Command name	**Argument In**	**Argument Out**
Init	DEV_VOID	DEV_VOID
State	DEV_VOID	DEV_STATE
Status	DEV_VOID	CONST_DEV_STRING

1 - Init

- **Description:** This commands re-initialise a device keeping the same network connection.
  After an Init command executed on a device, it is not necessary for client to re-connect to the device.
  This command first calls the device *delete_device()* method and then execute its *init_device()* method.
  For C++ device server, all the memory allocated in the *nit_device()* method must be freed in the *delete_device()* method.
  The language device desctructor automatically calls the *delete_device()* method.

- **Argin:**
  DEV_VOID : none.

- **Argout:**
  DEV_VOID : none.

- **Command allowed for:**

2 - State

- **Description:** This command gets the device state (stored in its *device_state* data member) and returns it to the caller.

- **Argin:**
  DEV_VOID : none.

- **Argout:**
  DEV_STATE : State Code

- **Command allowed for:**

3 - Status

- **Description:** This command gets the device status (stored in its *device_status* data member) and returns it to the caller.

- **Argin:**
  DEV_VOID : none.

- **Argout:**
  CONST_DEV_STRING : Status description

- **Command allowed for:**

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