

Design Tools

Dynamic VID



6. Dynamic VID DVID Slew Rate

This tool is used to adjust the voltage slew rate when there is a SVID command to change output voltage.

Note: These commands and options only applies when the controller is programmed to let SVID control output voltage level. PMBus operates differently.

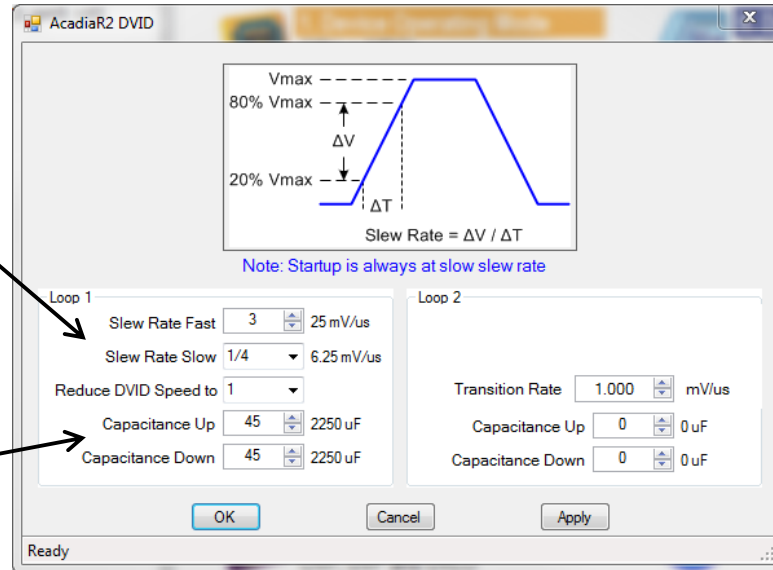
Different applications require different output voltage slew rate.

Slew Rate Fast - Acadia offer 16 different fast slew rate depending on applications and Intel requirements.

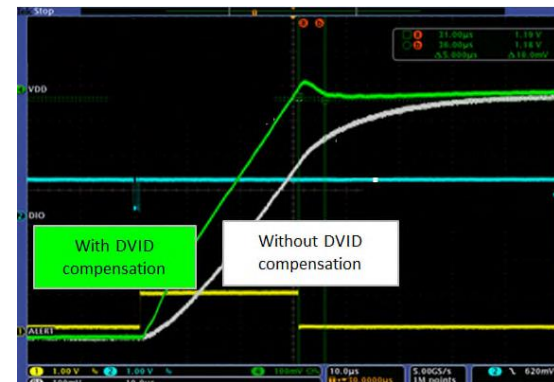
Slew Rate Slow - reduce the fast slew rate by the set factor. This is the output voltage slew rate used during start up.

Reduce DVID Speed - reduces both slew rates by the programmed factor (1, 1/2, 1/4, 1/8).

Capacitance Up/Down - enter the total value of output capacitance.



When the output voltage is ramping to a higher voltage, voltage position errors can be caused by current feedback system due to inrush current through the output bulk capacitors. The DVID compensate for this error by using output capacitance to model the effects of variation in output voltage during a voltage ramp and compensate for this error.



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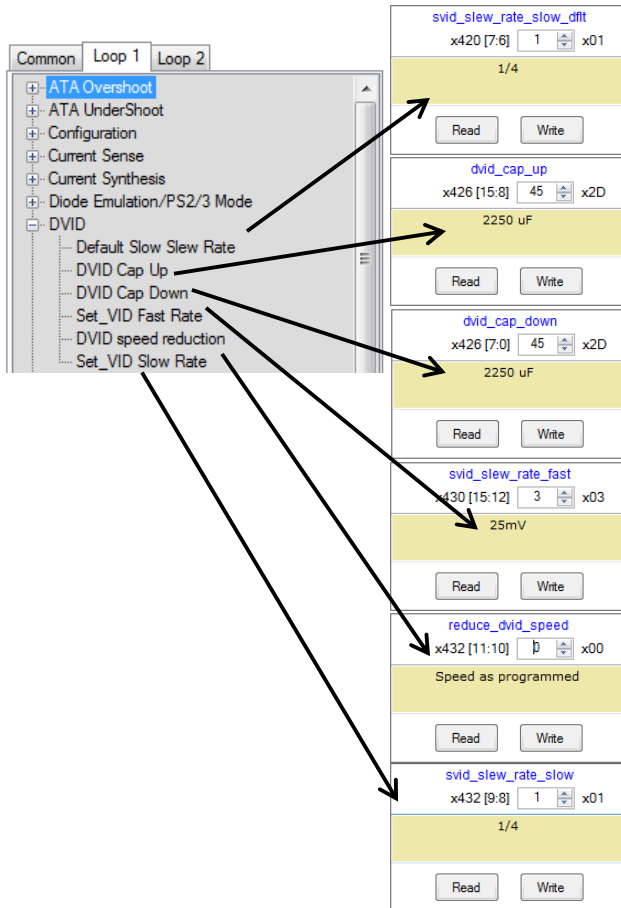


6. Dynamic VID

DVID Slow Rate

The same functions from this tool can also be programmed in the I2C command tree list.

Note: These commands and options only applies when the controller is programmed to let SVID control output voltage level. PMBus operates differently.



The screenshot shows the iVUS software interface. On the left, a tree view under 'DVID' includes 'Default Slow Slew Rate', 'DVID Cap Up', 'DVID Cap Down', 'Set_VID Fast Rate', 'DVID speed reduction', and 'Set_VID Slow Rate'. On the right, the I2C command list shows the following commands:

- svid_slew_rate_slow_dflt** (x420 [7:6]) 1 x01, 1/4
- dvid_cap_up** (x426 [15:8]) 45 x2D, 2250 uF
- dvid_cap_down** (x426 [7:0]) 45 x2D, 2250 uF
- svid_slew_rate_fast** (x430 [15:12]) 3 x03, 25mV
- reduce_dvid_speed** (x432 [11:10]) 0 x00, Speed as programmed
- svid_slew_rate_slow** (x432 [9:8]) 1 x01, 1/4

Arrows indicate the mapping from the tree view to the command list: 'Default Slow Slew Rate' to 'svid_slew_rate_slow_dflt', 'DVID Cap Up' to 'dvid_cap_up', 'DVID Cap Down' to 'dvid_cap_down', 'Set_VID Fast Rate' to 'svid_slew_rate_fast', and 'Set_VID Slow Rate' to 'svid_slew_rate_slow'.

In Loop 1 or Loop 2 Section under **DVID**.

The exact functionalities of the **Dynamic VID** tool can be configured with this commands with the exception of **Default Slow Slew Rate**.

Default Slow Slew Rate – when enable pin is deasserted, the slew rate is reset. This is the default slew rate in that situation, when the device turns back on.