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.
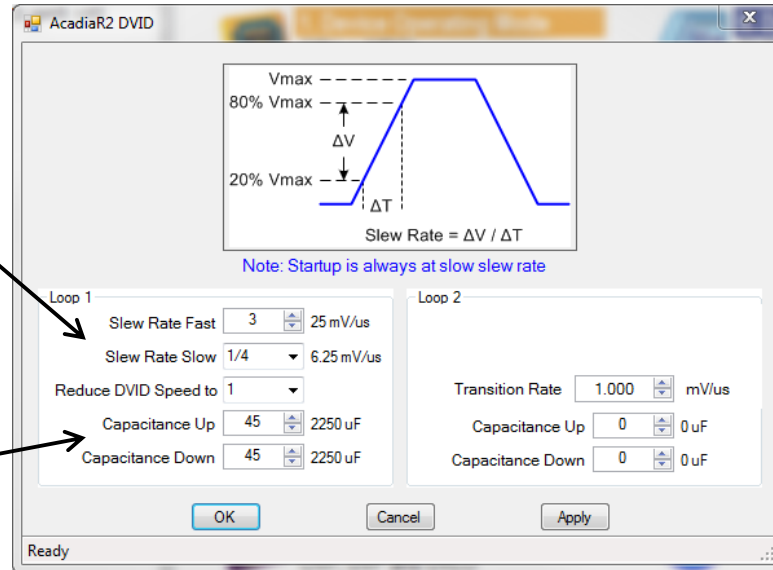
Different applications require different output voltage slew rate.

Slew Rate Fast - Acadia offer 16 different fast slew rate depending on applications and Intel requirements.
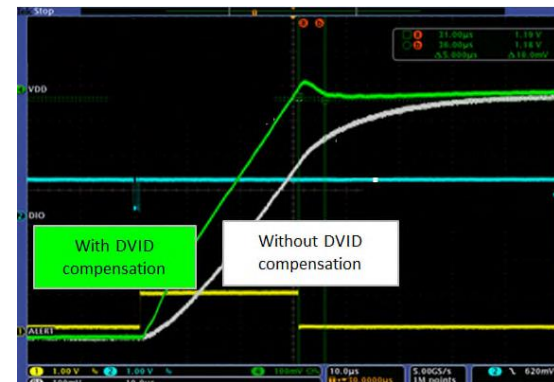**Slew Rate Slow –** reduce the fast slew rate by the set factor. This is the output voltage slew rate used during start up.
Reduce DVID Speed – reduces both slew rates by the programmed factor (1, 1/2, 1/4, 1/8).

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

AcadiaR2 DVID

Vmax
80% Vmax
ΔV
20% Vmax
ΔT
Slew Rate = $\Delta V / \Delta T$
Note: Startup is always at slow slew rate

Loop 1
Slew Rate Fast 3 25 mV/us
Slew Rate Slow 1/4 6.25 mV/us
Reduce DVID Speed to 1
Capacitance Up 45 2250 uF
Capacitance Down 45 2250 uF

Loop 2
Transition Rate 1.000 mV/us
Capacitance Up 0 0 uF
Capacitance Down 0 0 uF

OK   Cancel   Apply
Ready

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.
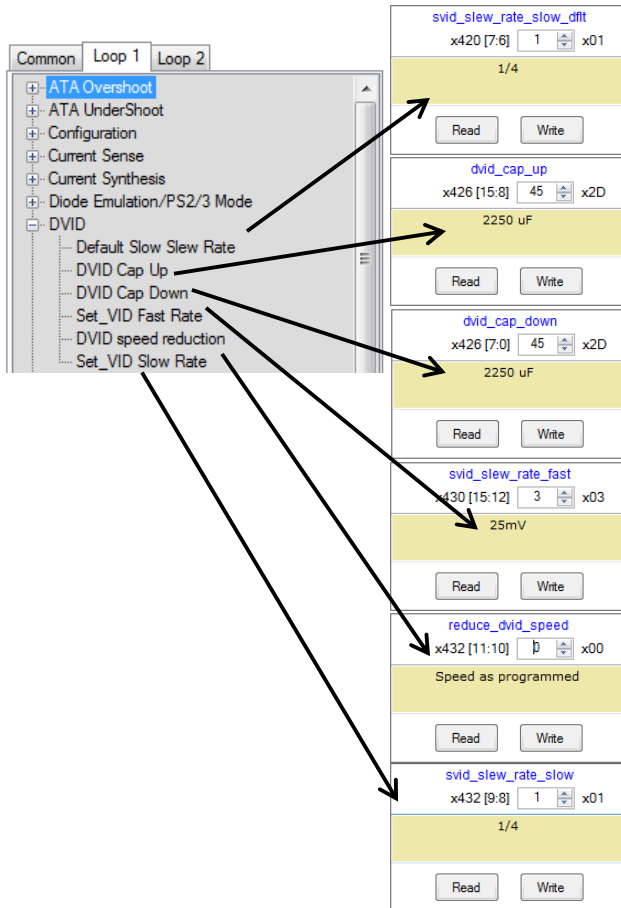

With DVID compensation

Without DVID compensation

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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.

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.