Guidelines for Resetting CC-PCs on Electronics boards

Introduction

From the start it was a requirement that it must be possible to reset the controls interface of an electronics board without the main function of the board being impaired by this operation. Resetting in this context means the action to bring the controls interface from any state into a known state. As an example, for a Credit-Card PC resetting means a hardware reboot by pulling the hardware reset line, similar to pushing the reset button on a desktop PC.

The requirement implies that there should be no effect whatsoever to the 'normal' operation of the electronics board, i.e. the data-flow should not stop if the controls interface is reset. It is meant, that this would be the last resort before powering-down the crate, in case the interface is not accessible via software anymore. It is not assumed that it will be possible to reset individual boards in a crate.

There was quite some effort put into the standard CC-PC Gluecard developed by the Genoa group to implement and support the 'transparent' reset of the CC-PC.

Infrastructure and Mechanism

The idea is to use the VME reset signal (SysReset# in VME terms) which is part of the standard VME crates. There is (usually) also a provision in the control interface of the VME crate to remotely activate this line through the fan-tray of the crate. This was true for the Cern standard 6U VME crates and also for the Cern standard 9U crates.

Figure 1 shows schematically the connection of the VME signal to the CC-PC and the GlueCard.
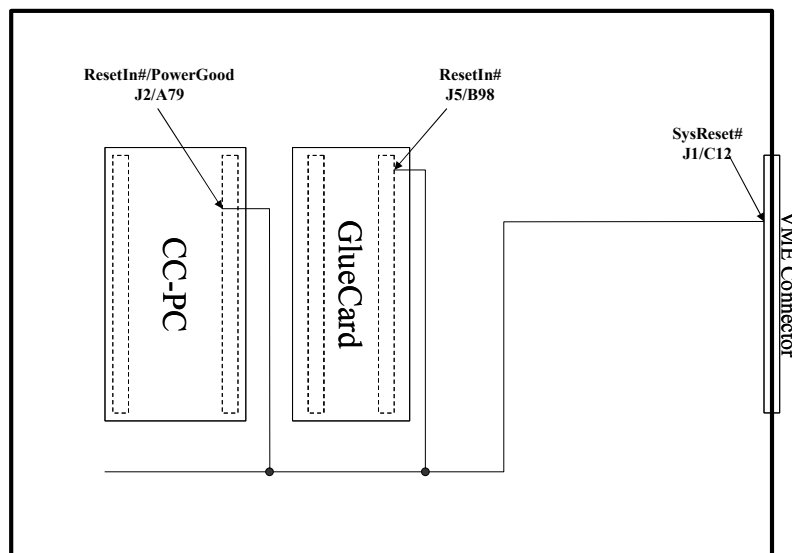

Figure 1 Connection of the VME SysReset# line to the GlueCard and the CC-PC. The Line is connected to the ResetIn pin (B98) of the LHCb specific connector (J5) on the GlueCard and to the ResetIn#/PowerGood pin (A79) on connector J2 on the CC-PC