

## **CompuScope digitizer channel enumeration**

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A CompuScope system is defined as a single independent CompuScope card or as a system of multiple CompuScope cards configured in Master/Slave mode. GaGe software treats a CompuScope system as a single logical entity with a certain number of input channels. This section explains how channel numbers are assigned within a CompuScope system in different operating modes.

The general rule is that channel numbers are assigned within a CompuScope system in sequential order in the operating mode where all channels are active. The first active channel is always channel #1. In a given operating mode, the channel number increment between successive active channels is equal to the total number of input channels on one CompuScope board divided by the number of active channels on one board. The number of active channels per CompuScope board is equal to the CompuScope operating mode value (i.e. SINGLE = 1, DUAL = 2, QUAD = 4, OCTAL = 8). In order to illustrate this rule, we give examples below.

Consider a 4-board Master/Slave CS14200 system. Each CS14200 is equipped with two input channels so that the 4-board system has a total of 8 input channels. In DUAL channel mode, therefore, all eight channels are active and are assigned as #1 through #8. In SINGLE channel mode, however, only one channel per board is active. The channel increment is calculated as  $2/1 = 2$ . In SINGLE channel mode, therefore, the active channel numbers on this CompuScope system are #1, #3, #5 and #7.

If we consider an 8-channel Octopus CompuScope card, then the channels are numbered 1 through 8 and are all active in OCTAL mode. In QUAD mode, however, the increment value is  $8/4=2$ , so that the active channels are #1, #3, #5 and #7. In DUAL mode, the increment is  $8/2=4$  so that the active channels are #1 and #5.

Under GageScope, only active channels controls are displayed. From an SDK, however, users must be sure to only assign settings to active channels.

Please note that in some GaGe documentation, the names “Channel A” and “Channel B” is used to mean “Channel 1” and “Channel 2”, respectively. Similarly, boards with differential inputs often refer to A+ / A- and B+ / B- to mean “Channel 1” and Channel 2”, respectively.