



L0 Datapath

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Needs- SVX2 vs SVX4

Item	SVX2	SVX4
Analog cable	Yes	yes
hybrid	Yes	yes
Digital jumper	Old style- need material and vendor	New style- have 3 vendors
Junction card	New style, see below.	Build- base on 2-chan prototype
Adapter card	Old style, use H disk	Build 2-hybrid version.
Interface boards	Use Hdisk slots	Use hdisk slots
HV	New separate run	New separate run



Needs- SVX2 vs SVX4(p.2)

Item	SVX2	SVX4
Fuse Panel	No change	No change
IB backplane	No Change	No Change
Low Voltage	No Change	No Change



Digital Jumper Cables – SVX2 option

- Making more Run2a-type Low-Mass Cables isn't trivial
 - Long, ~ 2 to 3 m Honeywell only vendor?
 - Parallel submini coax is long lead-time item
- Use present H-disk LMC's?
 - Already routed to adapter cards, most of cable plant exists
 - Requires new junction cards in H-disk region, and new short jumper cables from hybrids to junction cards
 - Present H-disk DJC's do not have connector on inner end, but HDI-style flex tail => Need Hirose connector on junction card
 - Problem: LMC's not tested above 100-200 volts, have filter capacitors with 100 to 200 volt rating

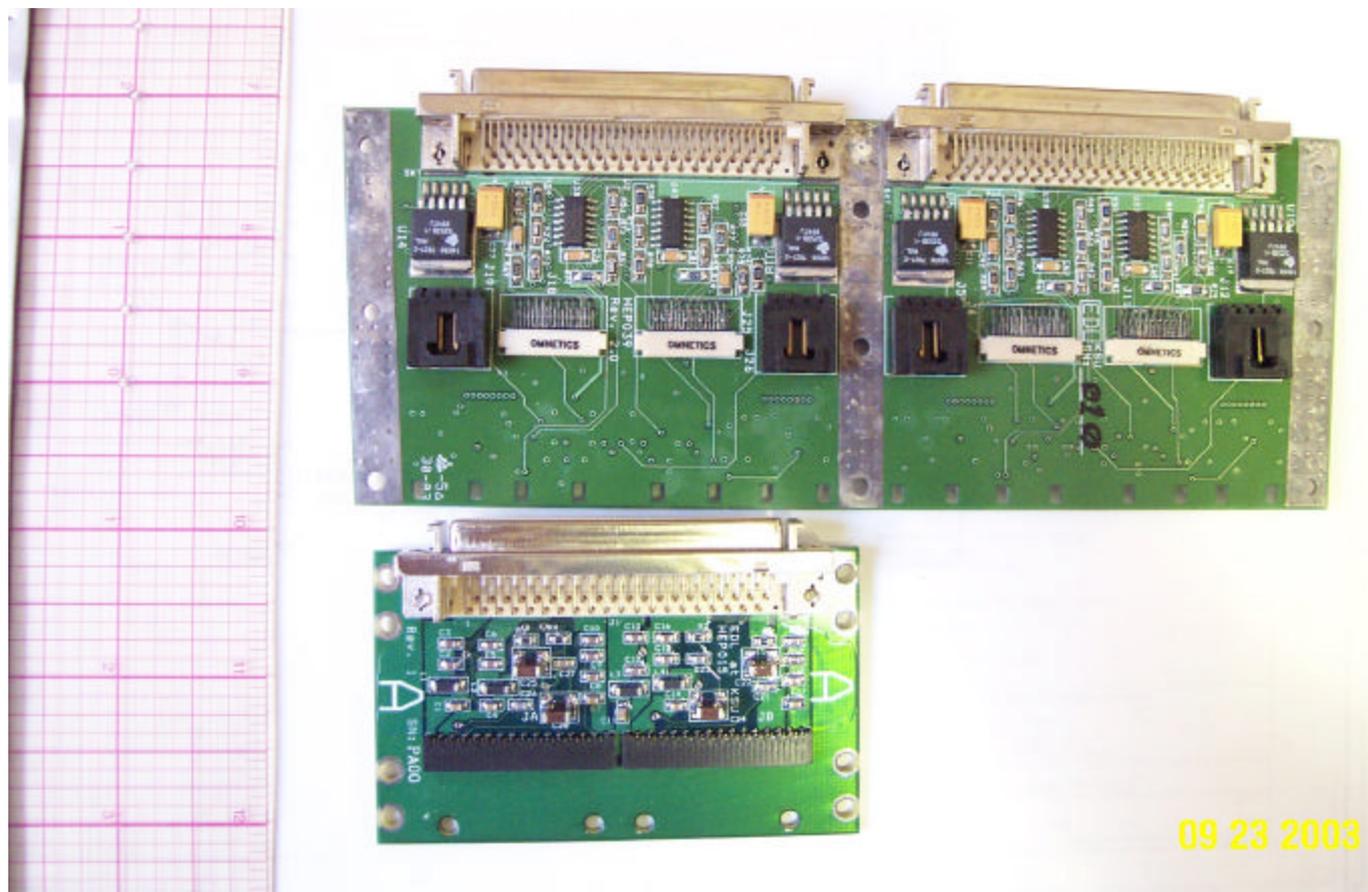


Digital Jumper Cables – SVX4 option

- Need Run2b-style digital cables, twisted-pair cables, and junction cards
- Concern:
 - Will twisted-pair cable fit thru cracks in present adapter-card plant?
 - All (most?) of present H-disk adapter cards are in the last AC row



Old vs New Adapter Cards



Difficult to match existing holes- half of new card is 10% wider than old card.

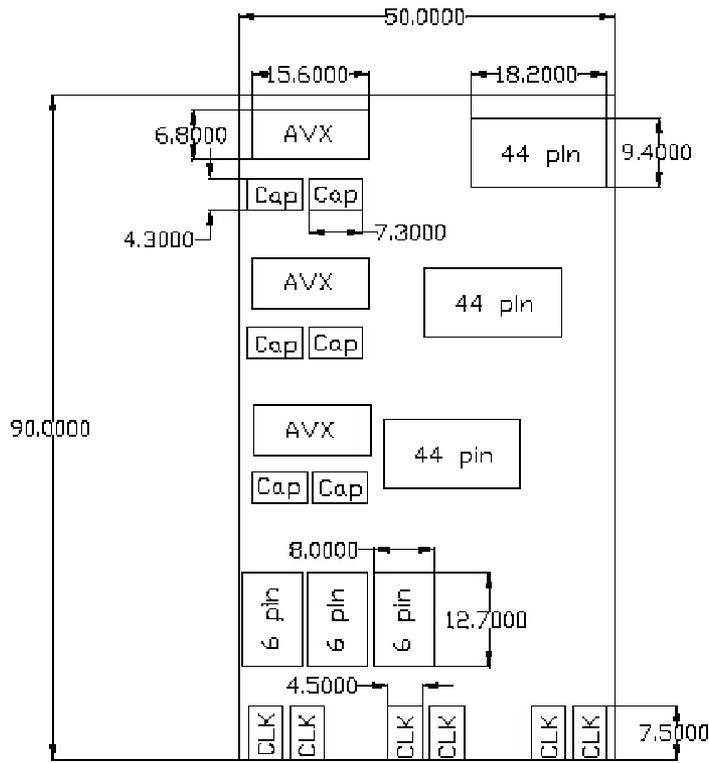


LV Power Needs

- Need:
 - +5V for adapter card (0.3A max)
 - +3.3V for adapter card (0.2A max)
 - +3 to 4V for SVX4 regulator (0.2A per hybrid)
- Have, if nothing is changed:
 - AVDD +5.75V → +5V for adapter card
 - AVDD2 +4V → SVX4
 - DVDD +5.25 → +3.3 V for adaptercard
- Requires changes in adapter card power layout.



L0-L1 junction card sketch



Note: Dimensions in mm.

This is an very old conceptual sketch of the L0/L1 junction card. Current ideas are to solder the clock and power connections.

Data connections are via AVX (hybrid side) and Omnetics (sequencer side).

Geometry (2 vs 3 channel) depends on readout organization.....



Rough Costs- SVX2 vs SVX4

Item	SVX2	SVX4
Junction Card	TBD	~\$31K
Adapter card	Recycle	~\$63K (conservative)

Costs include new layouts and one prototype run for each item. Assumes 144 hybrids are readout.



Interface Board Changes?

- Probably none needed.
 - Temp trip OK at 40 deg. Low temp is -10 deg (I think)
 - Current trip is 0.75A, OK for L0
 - Clock offset is ~2.3v, a bit high but probably OK.
 - Must reprogram firmware, but JTAG connector is accessible.
 - Adapter card designed to look like Run2a hybrid, so shouldn't need termination changes.