DUNE
Cold Electronics Cryo Testing
Update on RTS
(Robotic Testing Station)

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Three RTS are nearing completion.

Shipping an RTS to BNL

Partial unit: cryo capability not yet included
Needed at BNL ASAP

To-Do prior to shipment:

-- Package electrical components on DIN rail in NEMA-1 enclosure, with proper fusing and grounding
-- Mount enclosure to framework
-- Add in small 24 VDC vacuum pump for ASIC holding (pump in hand)
-- Program robot for basic operations

Missing items:

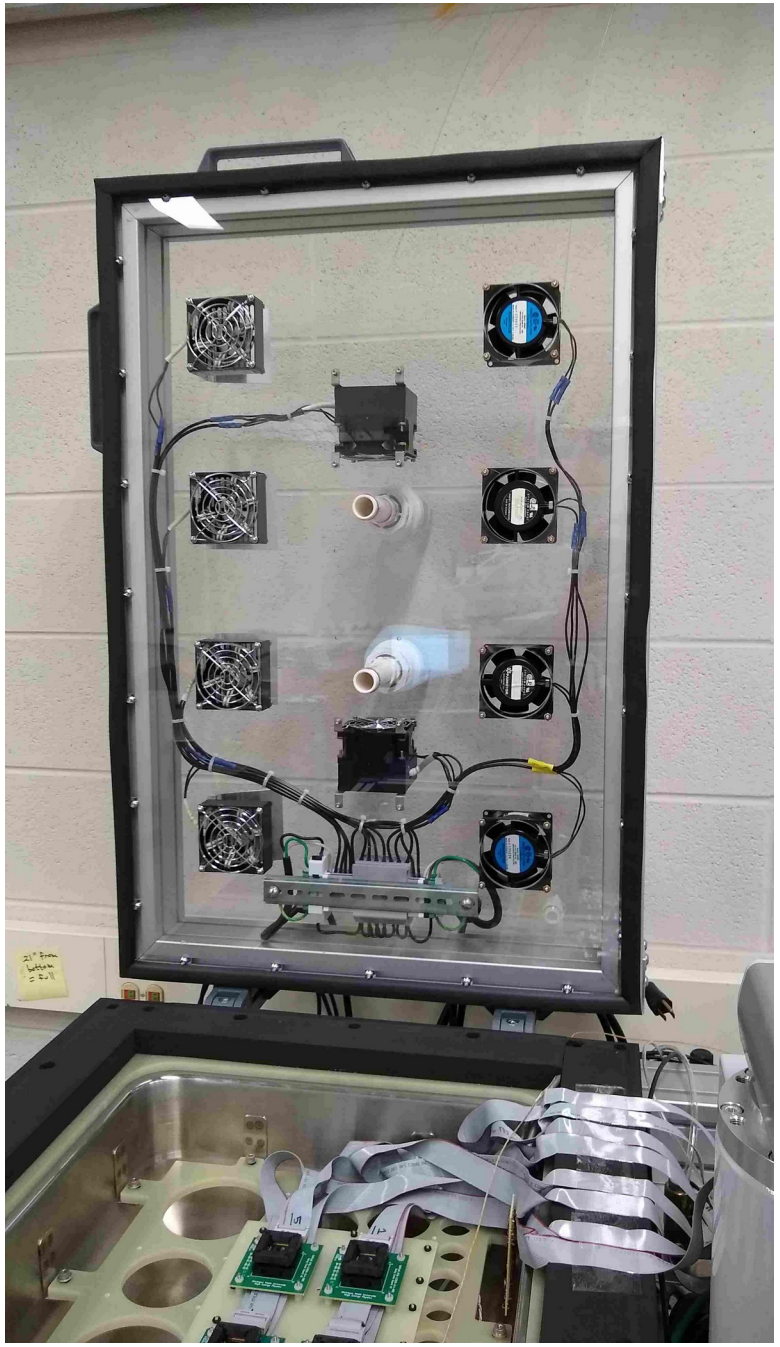
Down-facing camera and integration
EOAT (end-of-arm-tooling) for larger COLDATA ASICs
Fault detection in robot operation- hardware and software work needed

Plan:

Get robot unit shipped ASAP, current target Monday next week
Work on Missing items while in transit and during BNL electrical safety review process

Shipping details:

All group members exploring options



Decision needed on RTS heated lid

The current heated lid design:

-- 2400 watts heating power
-- Takes about 25-30 minutes to warm the test chamber
-- Will need updates to pass electrical safety
(metal enclosure not yet bonded/grounded)

The warmup time limits the RTS cycle time.

Cycle time could be improved with more heating power.

To implement current design by EOY we would need to order the heaters right away:

(6) 400W heaters per chamber; 3 RTS require 36 heaters
Quote: $7200 for 40 heaters, 3-4 weeks lead ARO

Question:

Should we explore a different heater configuration with more heating power? Doing so would push completion a few weeks into next year.

Extra slide:
Robot fault condition to handle in hardware/software

Robot system fault conditions

There are many fault conditions to consider.

The cameras can help in many cases, but some problems might not be visible to the cameras.

-- Chip already in socket or in tray when position is expected to be empty

-- Chip missing when expected to be in position

-- Chip in wrong orientation in socket or tray

-- Chip mis-loaded in socket or in tray

-- Socket on DAT board in wrong position, partially installed, or missing

-- Dropped chip

-- Damaged chip- leads bent or missing

-- Robot collision (unexpected object in robot path)

-- (still building list)