

# **B0 Hardware and Software Installation and Commissioning: Event–Builder, Level–3, Consumer Server and Data Logger**

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for the MIT/Rochester/Tsukuba Groups

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# Purchase and Installation

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## Purchasing and installation guidelines:

- ✘ eng. system must allow for full system test
- ✘ stable price items for eng. run
- ✘ PCs: *steeply falling* price, as late as possible
- VRBs according to detector setup
- full event-builder for eng. run
- all converter/output nodes
- only necessary processor nodes
- full consumer server and data logger
- data logger disks as needed

CDF schedule is critical for level-3 purchases  
CDF-Partyline: run starts April 2000

- ✘ when do we really start?
- ✘ what setup; meaning what are the rates?
- ✘ risk potential level-3 bottleneck in beginning?

These are questions to the collaboration!

# Hardware Installation Schedule

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## Presently existing system:

### Event-builder

1 VRB in the readout

13 scanner CPUs, SM, TM

ATM switch with in total 16 legs (e.g.  $8 \times 8$ )

### Level-3

4 (+1) converter nodes

20 (+4) processor/output nodes

consumer server and data logger

origin200 functions as such

disks (from benchmark tests)

## System planned for the engineering run:

### Event-builder

all no SVX VRBs ( $\approx 15$ )

16 scanner CPUs, SM, TM

ATM switch with in total 32 legs (e.g.  $16 \times 16$ )

### Level-3

16 converter nodes

48 processor nodes

4 output nodes

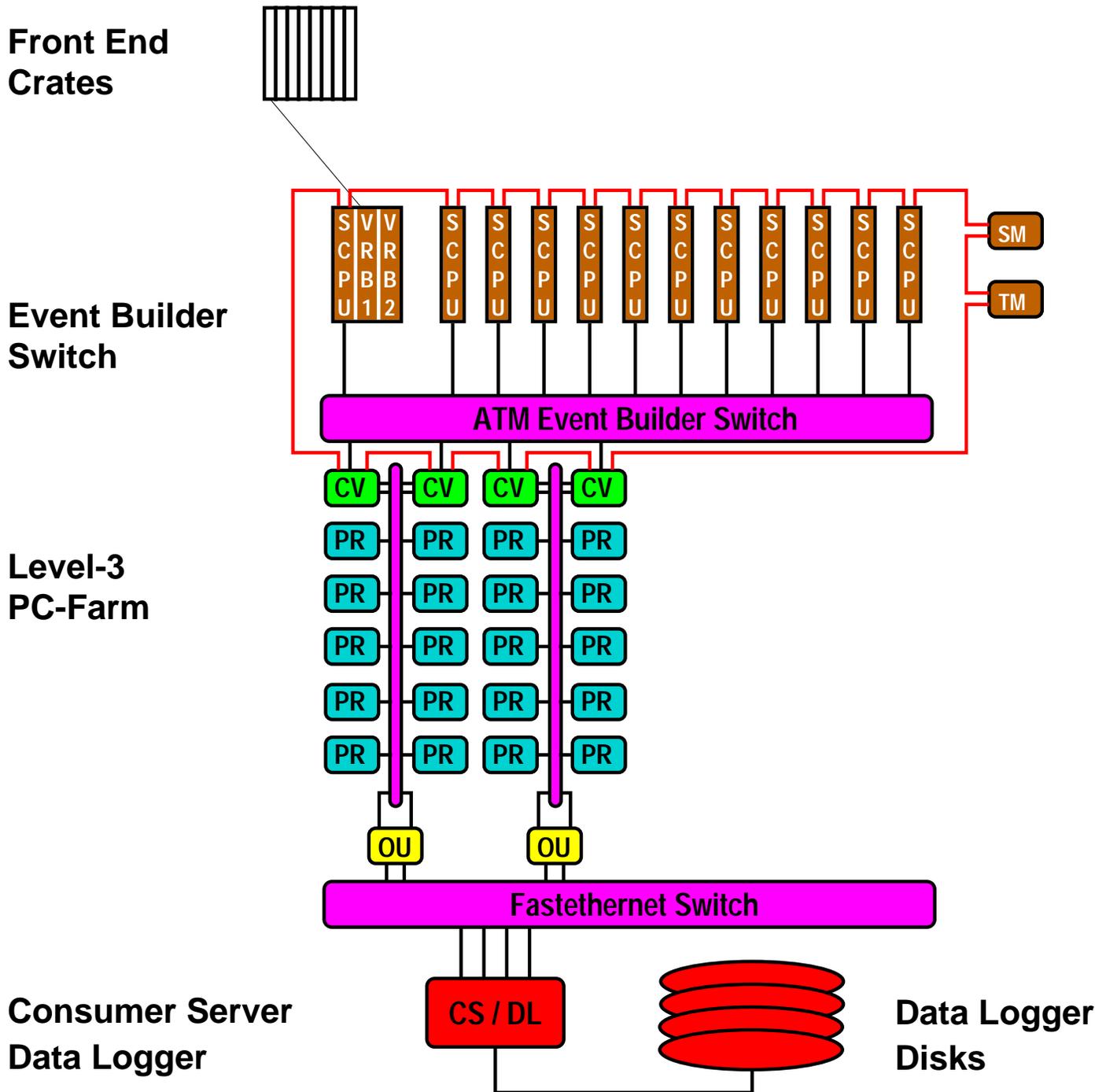
consumer server and data logger

origin200 functions as such

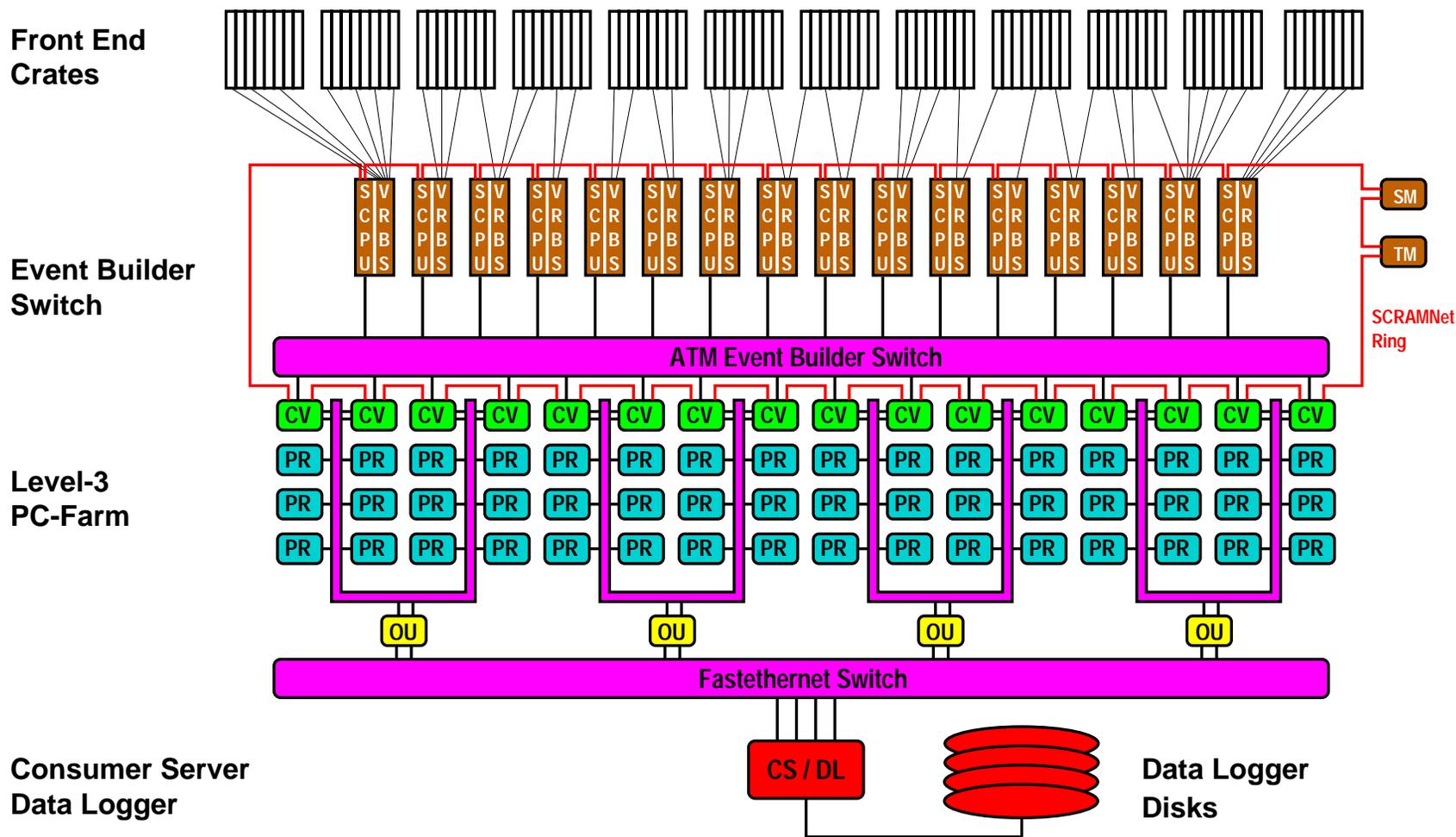
minimum disks needed

# Hardware Installation Schedule

## Actual CDF Data Acquisition System



# CDF Data Acquisition System: Engineering Run



# Full Run II System

## Event-builder

all VRBs in the readout

16 scanner CPUs, SM, TM

ATM switch with in total 32 legs (e.g.  $16 \times 16$ )

## Level-3

16 converter nodes

140 processor nodes

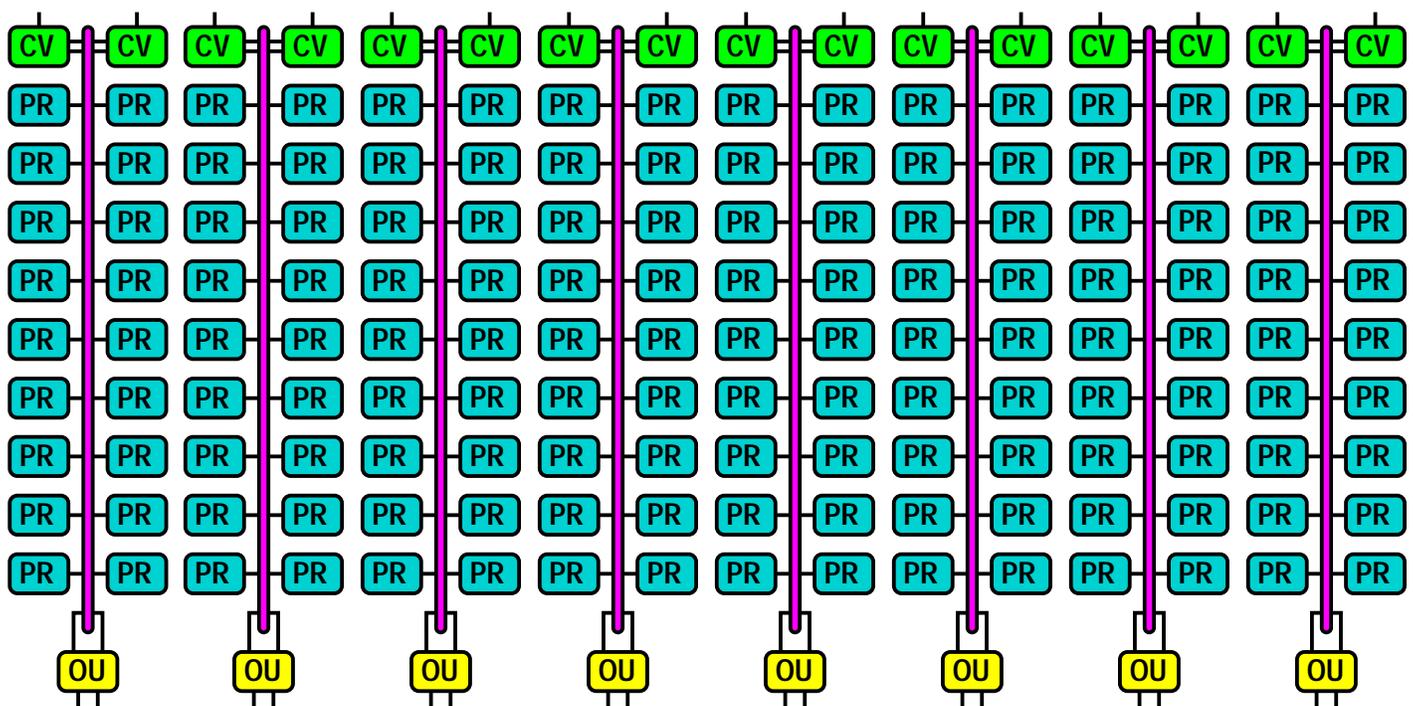
8 output nodes

consumer server and data logger

origin200 functions as such

disks as needed

## Start of Run II Level-3 System



# Hardware Installation and Comissioning

## Installation location:

B0 first floor (one crate second floor)

B0 third floor

B0 third floor

VRBs

EVB, L3

CS/DL

## Manpower for hardware and software:

CD, W. Stuermer, Sergei Bourov + SVX group

S. Tether, J. Tseng, A. Rakitin

J. Tseng, I. Kravchenko, A. Korn, I. Furić, CP

M. Shimojima, K. McFarland, T. Vaiciulis

VRBs

EVB

L3

CS/DL

### 1999 Hardware Installation

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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CDF Detector Schedule



VRBs

VRB time schedule not well defined

Event-Builder



Level-3



Consumer Server/  
Data Logger



### 2000 Hardware Installation

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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CDF Detector Schedule



VRBs

VRB time schedule not well defined

Event-Builder

Level-3



Consumer Server/  
Data Logger

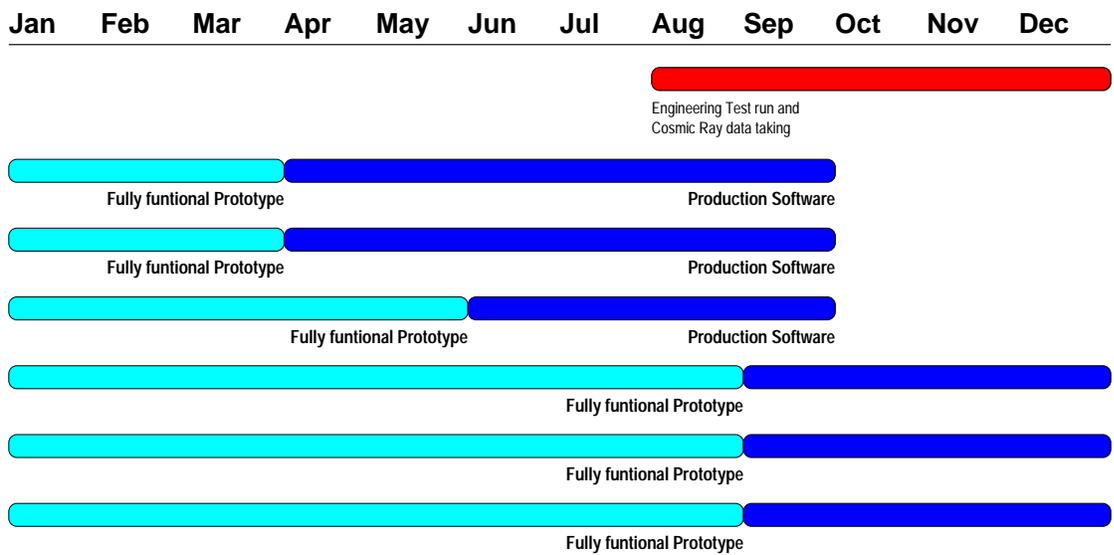


# Software Timelines

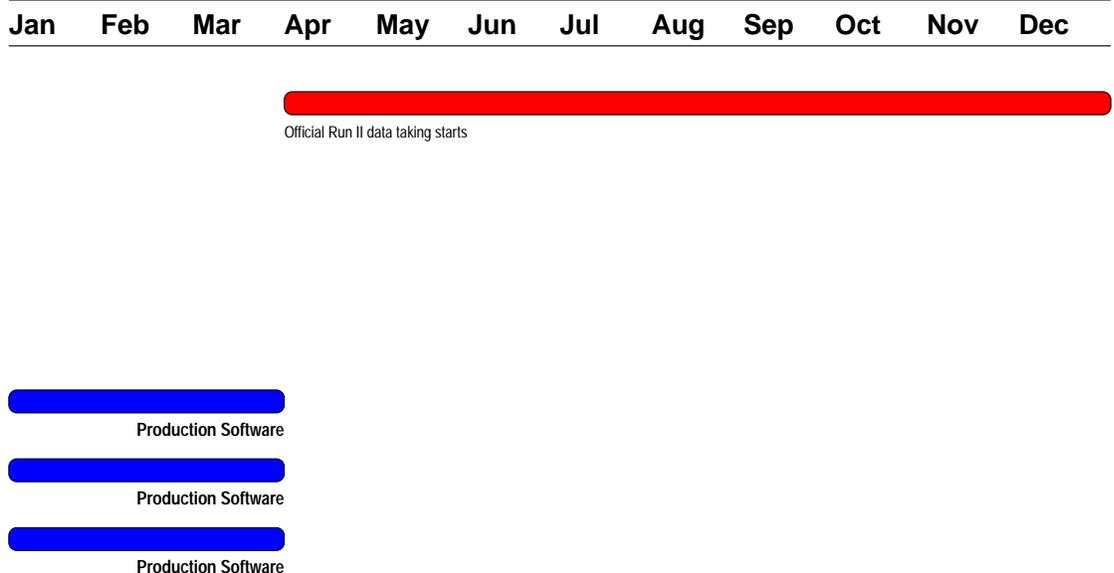
## General idea:

fully functional prototype for engineering run  
 tuning during engineering run  
 production software for Run II start

### 1999 Software Installation



### 2000 Software Installation



# Tests and Infrastructure

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## Tests for commissioning:

- ✗ sent events down the data path
- ✗ test interfacing with level-3 executable
- ✗ test exceptions and emergency procedures

## Infrastructure B0 first floor:

racks with power and cooling  
optical links front end electronics to VRBs  
optical links VRBs to ATM switch  
external network connection

## Infrastructure B0 third floor:

racks with power and cooling  
level-3 will be housed in industrial shelves  
several PCs to work in this room  
external network connection  
data link to Feynman Computing Center

# Summary and Conclusion

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Milestone: Wedge Test March 1999

event flow: VRBs → CS/DL

interface event flow / level-3 executable

Milestone: Engineering Run August 1999

full system with *light level-3*

production software for event flow

prototypes for all remaining software

Milestone: Run II Start April 2000

full system installed

DAQ system on track for prototype August 1999

But still there will be work to be done:

- ✗ detailed debugging
- ✗ fine tuning: performance issues
- ✗ extension of event-builder for higher rates
- ✗ extension of level-3 for higher rejection/rates
- ✗ extension of consumer server for more consumers