# BaBar EPICS Status

J. Olsen
*University of Maryland*

## Outline

- Statistics
- Interaction with BaBar
- Interaction with Run_Control/Objectivity
- Interaction with PEP-II

# Some Statistics

~20 developers (3% of BaBar)

14 IOCs

~100,000 process variables

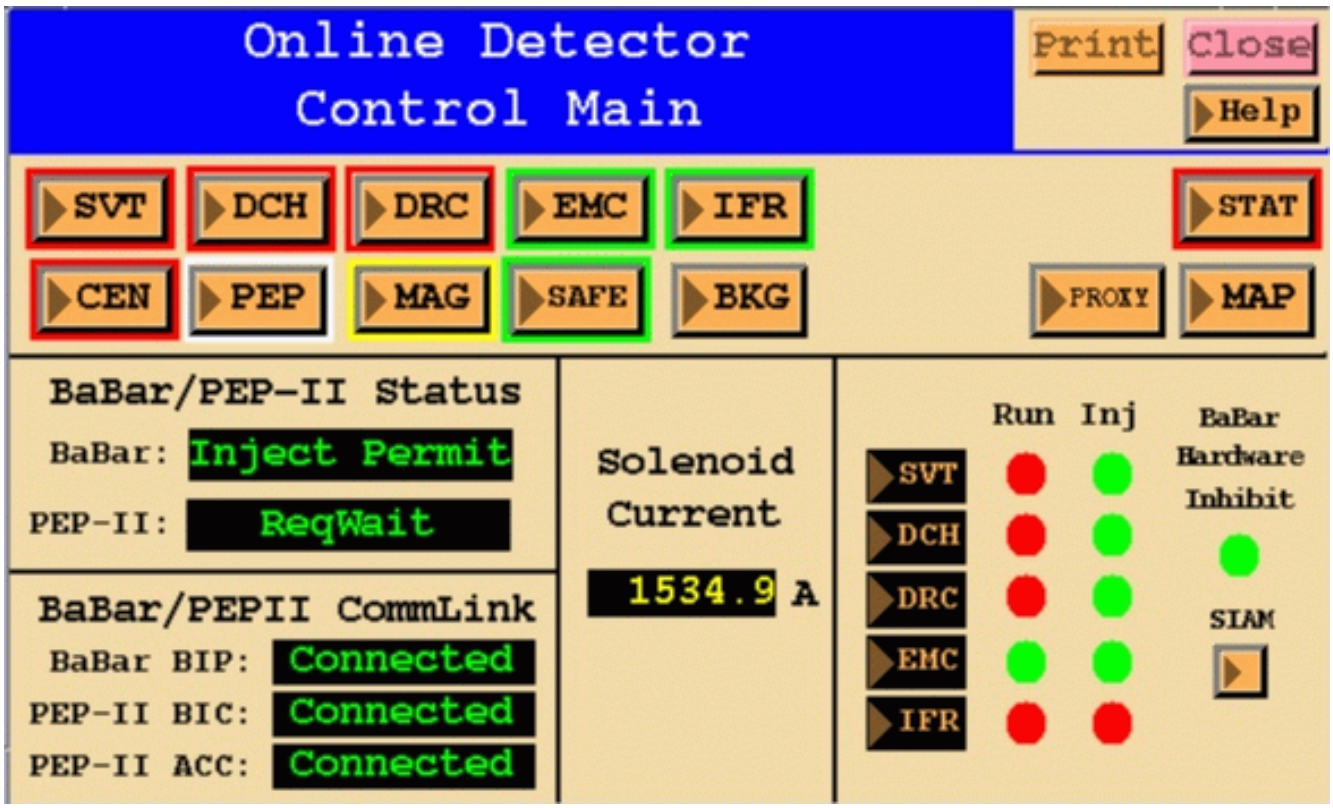
Tools used:

- Display Manager
- Alarm Handler
- CMLOG
- StripTool
- Archiver
- Sequencers
- Unix CA server

Drivers used:

- CAEN
- CANbus
- VSAM
- SIAM

# Interaction with BaBar



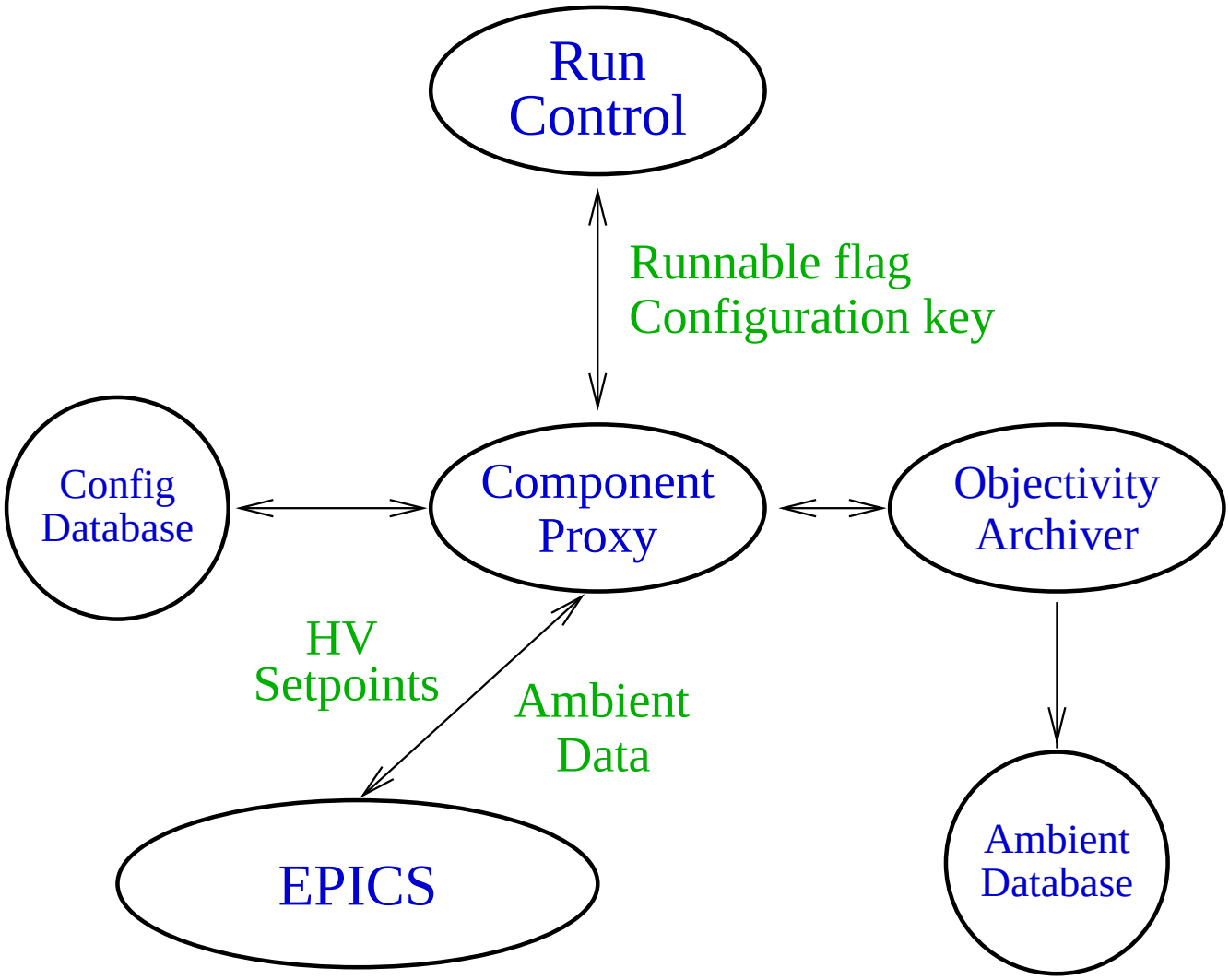

Detector Control - mainly high voltage

Detector Monitoring

- Operational: voltage, current, pressure, B field, scalers
- Environmental: temperature, radiation, humidity
- General: SIAMs, VME and IOC status

Alarm Handler - main tool for shifters

# Interaction with Run_Control/Objectivity



# Component Proxy Status

Exit

| Proxy | COMPY State | Flushes | Last Flush | Next Flush | MBytes Stored | Memory Used(%) | RUN | INJ | NoLog | Debug |
|---|---|---|---|---|---|---|---|---|---|---|
| DCH:HV:X | READY | 32 | Tue May 25 16:00:00 | 1200 | 2.24 | 12.21 | NO | YES | OFF | OFF |
| DCH:ENV:X | READY | 4 | Tue May 25 16:00:00 | 1200 | 0.43 | 9.18 | N/A | N/A | OFF | OFF |
| DCH:GAS:X | READY | 42 | Tue May 25 15:30:00 | 180 | 6.34 | 18.33 | N/A | N/A | OFF | OFF |
| EMC:BB:X | READY | 5 | Tue May 25 16:00:00 | 1200 | 0.47 | 2.94 | YES | YES | OFF | OFF |
| EMC:BF:X | READY | 11 | Tue May 25 16:00:00 | 1200 | 1.38 | 3.30 | YES | YES | OFF | OFF |
| EMC:EC:X | READY | 10 | Tue May 25 16:00:00 | 1200 | 1.72 | 5.05 | YES | YES | OFF | OFF |
| EMC:GEN:X | READY | 11 | Tue May 25 16:00:00 | 1200 | 0.15 | 0.52 | N/A | N/A | OFF | OFF |
| IFR:BR:X | READY | 10 | Tue May 25 16:00:00 | 1200 | 0.35 | 4.81 | NO | NO | OFF | OFF |
| IFR:EC:X | READY | 4 | Tue May 25 16:00:00 | 1200 | 0.12 | 3.06 | NO | NO | OFF | OFF |
| CEN:MON:X | READY | 12 | Tue May 25 16:00:00 | 1200 | 7.92 | 11.73 | N/A | N/A | OFF | OFF |
| CEN:BIP:X | READY | 19 | Tue May 25 16:00:00 | 1200 | 2.88 | 14.95 | N/A | N/A | OFF | OFF |
| CEN:GMS:X | READY | 8 | Tue May 25 16:00:00 | 1200 | 0.15 | 5.00 | N/A | N/A | OFF | OFF |

# Interaction with PEP-II

## Two EPICS routes between BaBar and PEP-II

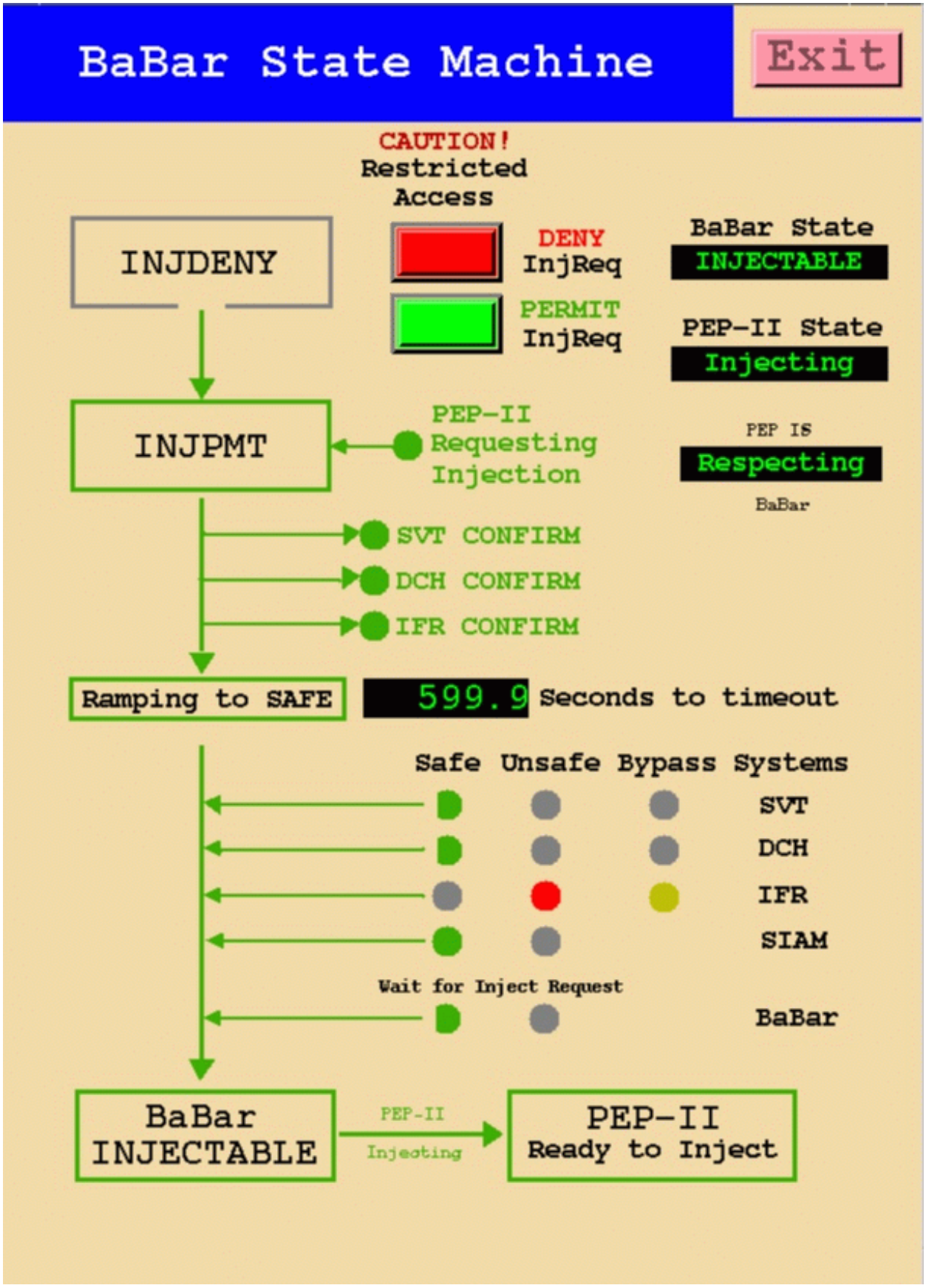
- The Gateway CA server - link to accelerator network
- IOC to IOC communication (BIC and BIP)

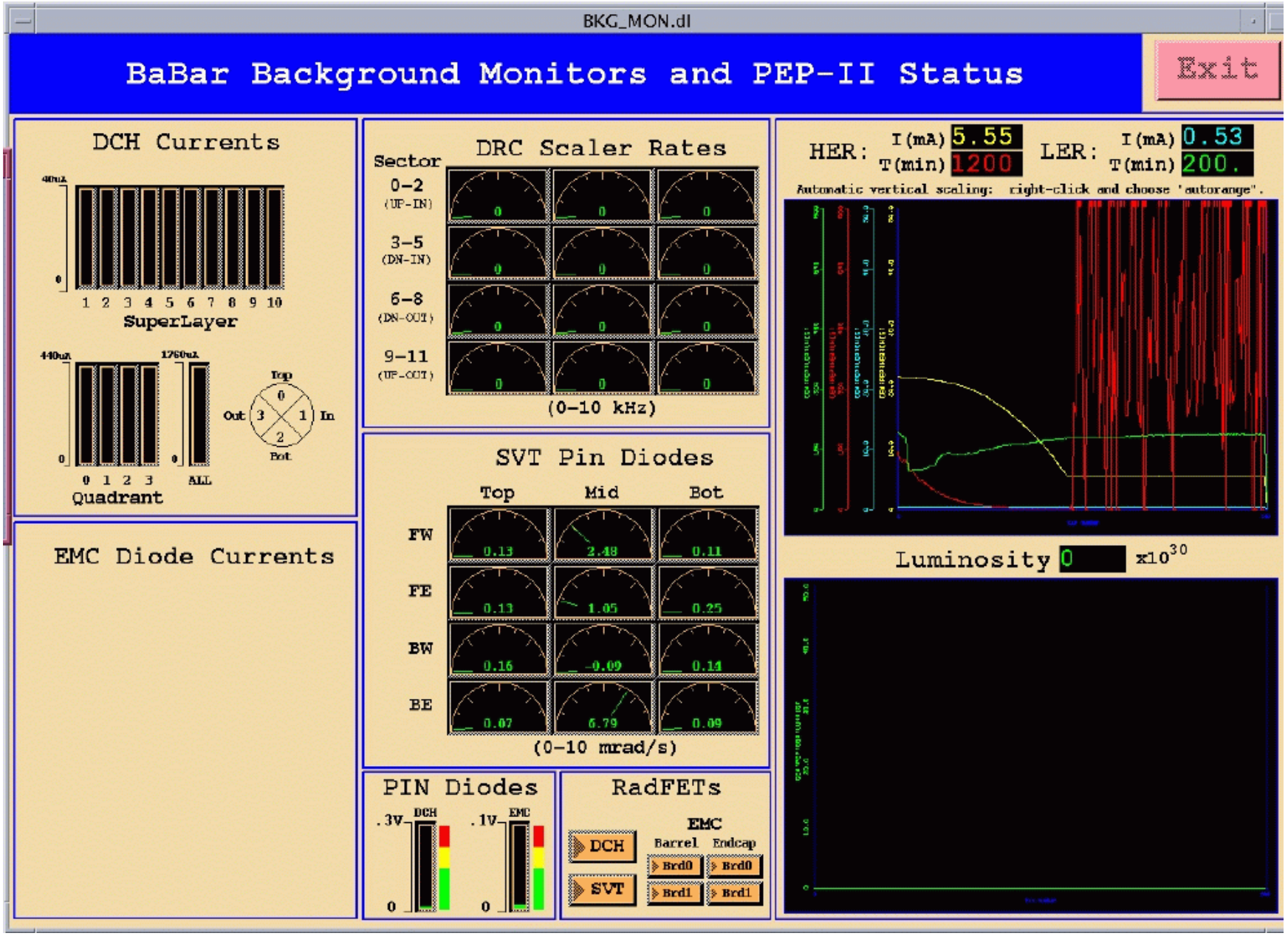
## Injection handshake

- Two EPICS state machines on BIC and BIP
- PEP cannot inject unless BaBar is safe
- First line of defense against radiation damage
- Necessary to run PEP-II/BaBar in "factory" mode

## BaBar Liaison

- Located in accelerator control room
- Monitors background panels and BaBar status


BaBar State Machine
Exit
CAUTION!
Restricted
Access
INJDENY
DENY
InjReq
PERMIT
InjReq
BaBar State
INJECTABLE
PEP-II State
Injecting
INJPMT
PEP-II
Requesting
Injection
PEP IS
Respecting
BaBar
SVT CONFIRM
DCH CONFIRM
IFR CONFIRM
Ramping to SAFE
599.9
Seconds to timeout
Safe Unsafe Bypass Systems
SVT
DCH
IFR
SIAM
Wait for Inject Request
BaBar
BaBar
INJECTABLE
PEP-II
Injecting
PEP-II
Ready to Inject


BKG_MON.dl
BaBar Background Monitors and PEP-II Status
Exit
DCH Currents
1 2 3 4 5 6 7 8 9 10
SuperLayer
0 1 2 3
Quadrant
ALL
Top
Out
In
Bot
EMC Diode Currents
DRC Scaler Rates
Sector
0-2
(UP-IN)
3-5
(DN-IN)
6-8
(DN-OUT)
9-11
(UP-OUT)
(0-10 kHz)
SVT Pin Diodes
Top
Mid
Bot
FW
FE
BW
BE
0.13
2.48
0.11
0.13
1.05
0.25
0.16
-0.09
0.14
0.07
6.79
0.09
(0-10 mrad/s)
PIN Diodes
.3V
DCH
.1V
EMC
RadFETs
DCH
SVT
EMC
Barrel
Endcap
Brd0
Brd0
Brd1
Brd1
HER:
I(mA) 5.55
T(min) 1200
LER:
I(mA) 0.53
T(min) 200.
Automatic vertical scaling: right-click and choose 'autorange'.
Luminosity 0
x10^30