

KEKB Status

EPICS collaboration meeting @ LANL

Apr.29 - May 1, 1998

presented by Noboru Yamamoto, KEK, JAPAN

Machine Status

KEKB Control System Status

Beam Transport commissioning

Control System software

- ◆ Relational Database and EPICS database
- ◆ SAD
- ◆ Python

ARCNET/Modbus+ support

Tools : GDL, ar2cwn

KEKB Machine Status

KEKB rings(LER/HER) are under construction. Major installation work is in progress.

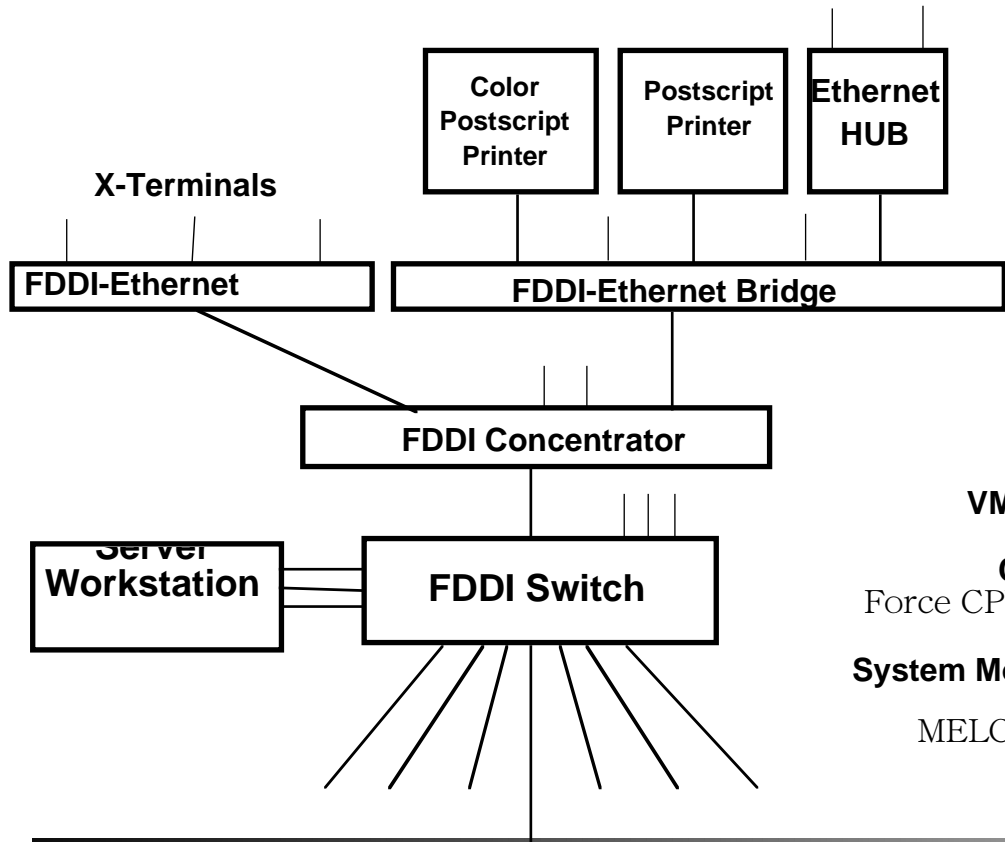
Injection LINAC upgrade: Succeeded to accelerate electron beam up to 8GeV.

A part of beam transport line from LINAC to KEKB HER was operated using EPICS based control system.

Commissioning of KEKB expected at Oct. 12.

KEKB control system status

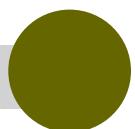
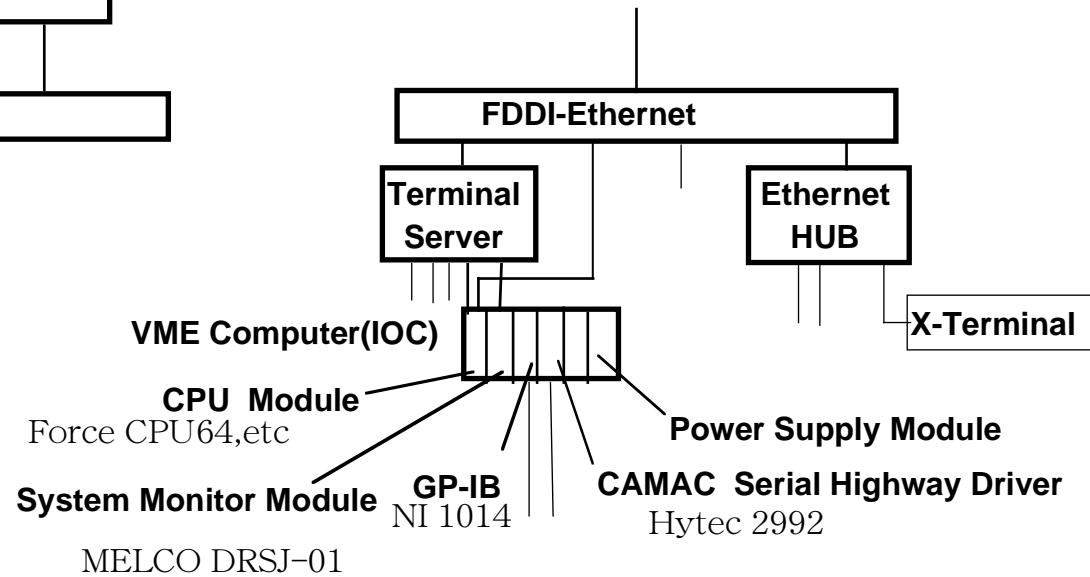
Central Control Room



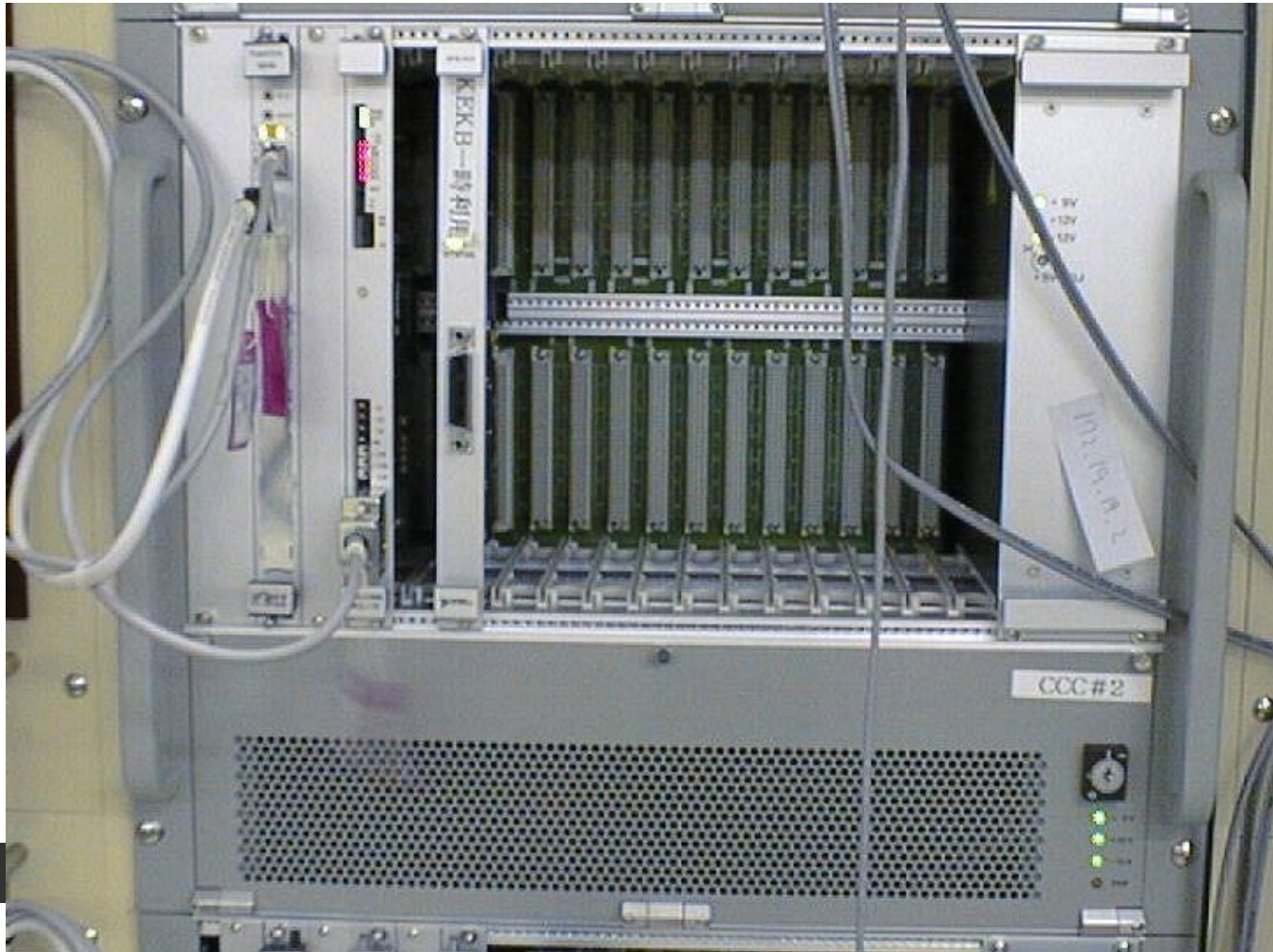
To Local Control Rooms

26 Local Control Rooms and Central Terminal Room

From the Central Control Room



Standard VME sub rack for KEKB control



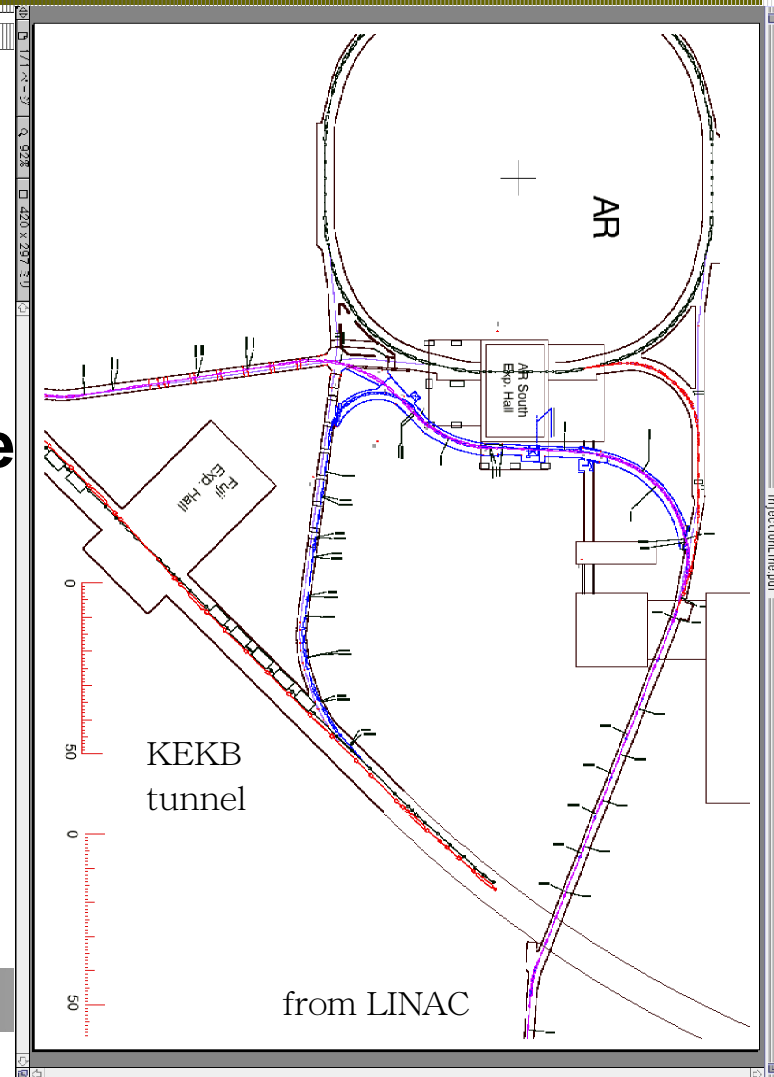
BT (beam transport line) commissioning

KEKB and AR share parts of the LINAC.

This part is controlled by EPICS.

It is the first control system base

BT is in operation since



Operation Software

EPICS database and adl files are generated from a database on ORACLE. (M. Kaji in this afternoon)

CAPFAST is used to prepare database template.

MEDM and Python are used as OPI tools.

AR_cmd is used to archive data.

ALH is used for alarm notification.

PAW++ is used to view archived data.

BT control sample screen

medm

BT line VACuum CONTROL SYSTEM

LINAC B factory

Comp.air P 0.89200 M

Vacuum OK!

Com.Air P Interlock

VP E-1, VP E-2, AGV E-1, VP E-3, MGV E-2, VP E-4, MGV E-3, VP E-5

Bar Chart Data:

Stage	Value
E1	0.020
E2	0.050
E3	0.055
E4	0.045
E5	0.040
E6	0.050
E7	0.080
E8	0.540
AR1	1.595
AR2	2.265
AR3	1.080
AR4	0.925

tk BT Tuning

1. Check Vacuum Status.
Vacuum OK!
Vacuum Control
2. Insert MSE.1 & Check.
MSE_01
3. Insert MSE.2 & Adjust LINAC Energy.
MSE_02
4. Insert MSE.4 & Adjust H/V Steering.
MSE_04
Ticks-H: 0.1 mrad
Ticks-V: 0.1 mrad
HX06E: 0.1 mrad
VX02E: -0.551 mrad
5. Insert MSE.5 & Adjust H/V Steering.
MSE_05
Ticks-H: 0.1 mrad
Ticks-V: 0.1 mrad
HX08E: -1.35 mrad
VX06E: 0.09981 mrad
6. Insert MSE.6 & Adjust HW11E & VW09E Steering.
MSE_06
Ticks-H: 0.1 mrad
Ticks-V: 0.1 mrad
HW11E: 0.03 mrad
VW09E: 0.56 mrad

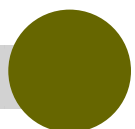
(6'). If HW11E does not work well, use HW12E.

MSE_06
Ticks-H: 0.05 mrad
Ticks-V: 0.1 mrad
HW12E: -0.01 mrad
VW09E: 0.56 mrad

7. Out All Screen Monitors.
ALL OUT

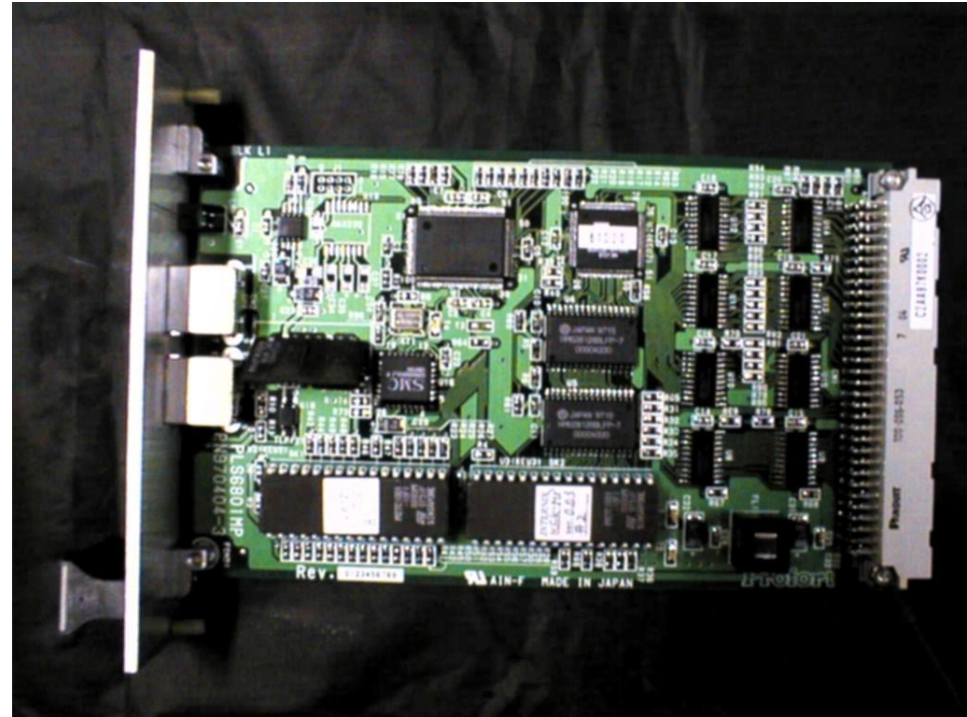
Quit
HOME

Python/Tk with
Cannel Access



ARCNET

An ARCNET controller board for Magnet power supplies is developed. The boards are used in BT commissioning.



Modbus+

Modbus+ is used for:

- ◆ Human protection system
- ◆ Magnet status monitoring system

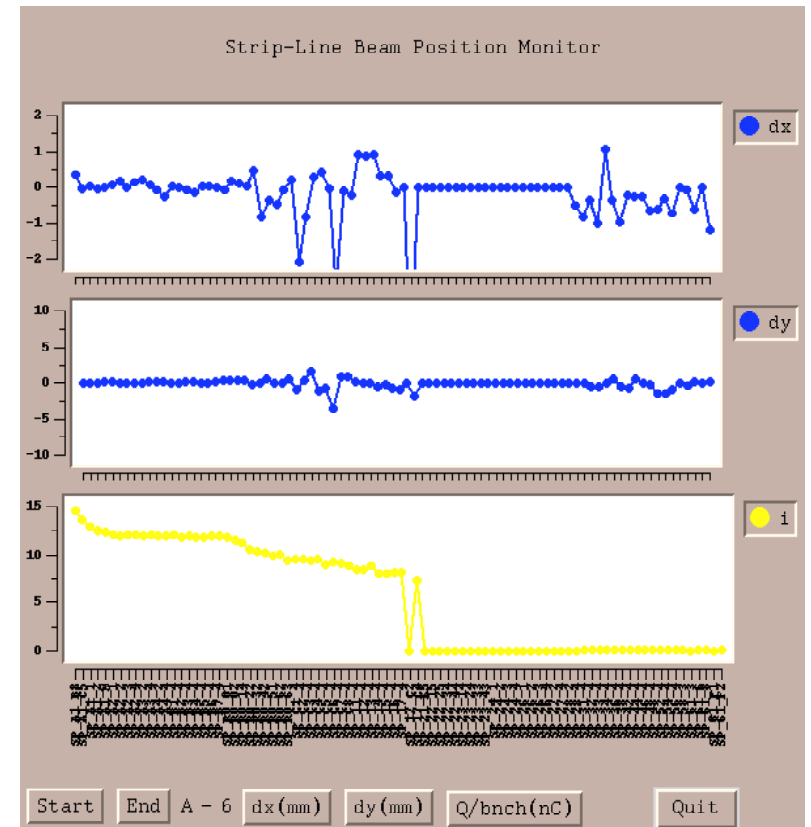
Mostly read only

VME Modbus+ interface : Modicon SV85

- ◆ Device driver for EPICS
- ◆ BI and MBBI device support
- ◆ talk on Thursday.

LINAC CA server

LINAC CA server based on the portable CA server is developed. It will be used to access control data in LINAC control system (based on in-house RPC) from KEKB control system(EPICS based).



Development tools

GDL: GP-IB device Description Language

ar2cwn: AR format to cwn format(PAW) converter

adlmac: adl macro utility.

SAD/CA/Tk:

- ◆ "All in One" program for Accelerator modeling
- ◆ Mathematica like scripting language
- ◆ CA interface
- ◆ Tk for GUI

Python-CA: CA interface in Python

Feature of Python/CA (or personal wish list)

A channel object in C-module level

- ◆ Python/CA consists of two modules, `_ca.c` and `ca.py`, for flexibility.

Error handling

adl file reader in Python

Framework for application with GUI



Conclusion

EPICS is at WORK in KEKB.

But we still have a lot of things to be done!

