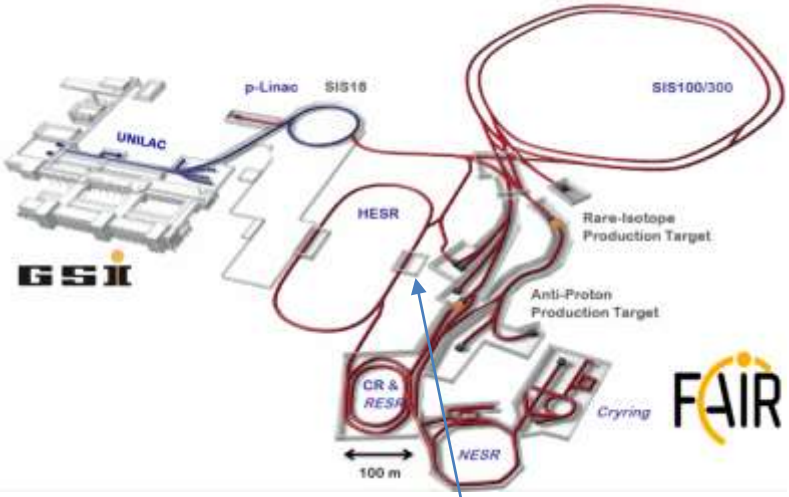
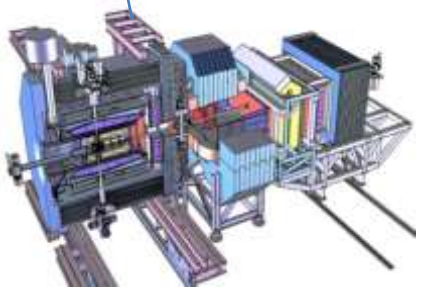
Proiect	SISTINA Capacitati Modul III (CERN – RO – FAIR)
Faza II	Contributii IFIN-HH la constructia experimentul PANDA: propunere tehnica pentru sistemul de control lent al experimentului PANDA, suport PandaGrid

$\overline{\text{P}}$ANDA Collaboration (Anti-**P**roton **AN**nihilation at **DA**rmstadt)

- Public letter of intent in 2004
- 2015 : **66 Institutes and Universities from 18 countries** (Australia, Austria, Belarus, China, Franta, Germania, India, Italia, Polonia, Romania, Rusia, Spania, Suedia, Elvetia, Thailanda, Olanda, USA, UK);
- **644 members**

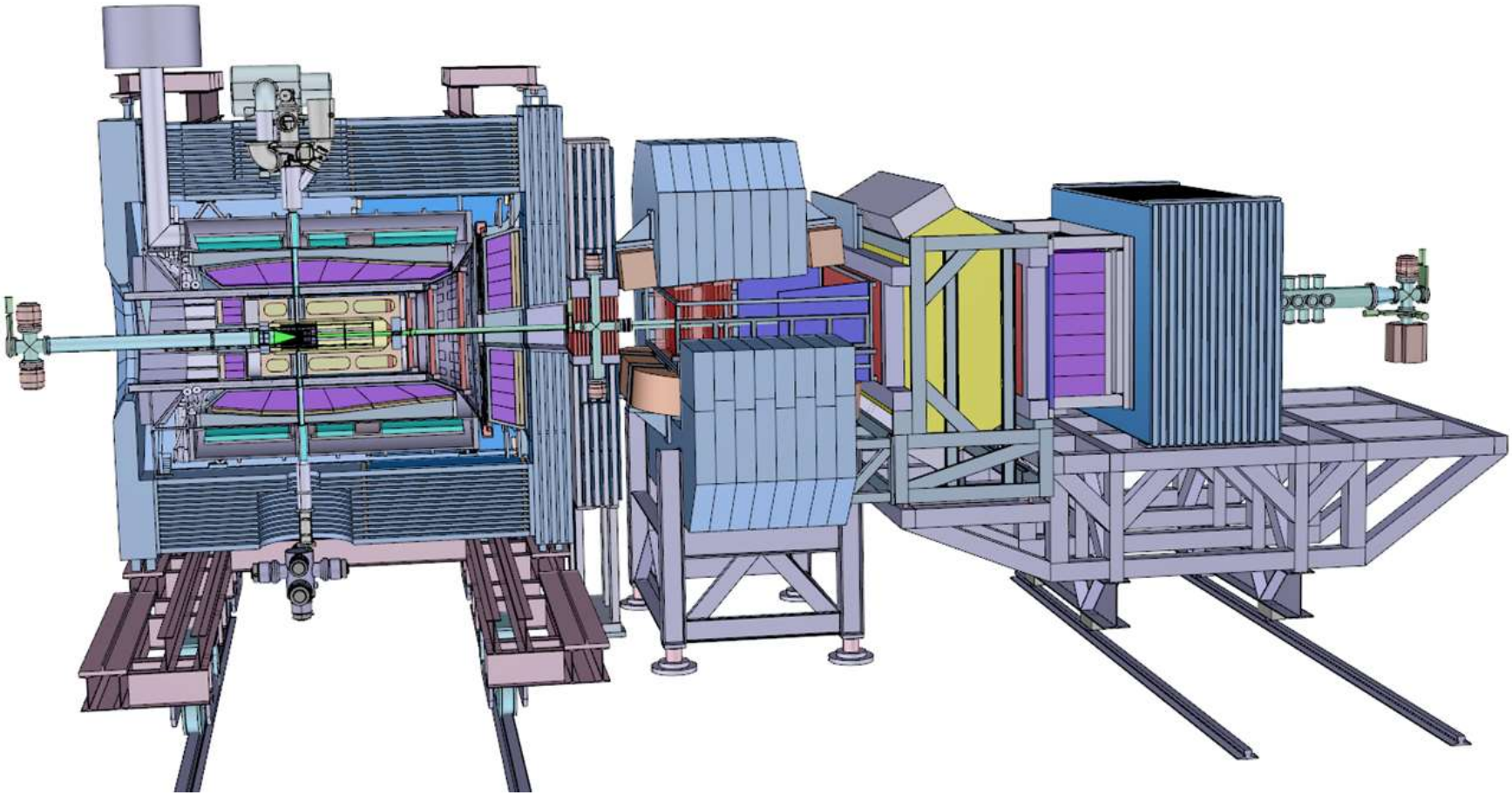
Facility for **A**ntiproton and **I**on **R**esearch





PANDA Detector

$\overline{\text{P}}$ANDA Detector



PANDA Technical Design status

22 TDR's

- Approved 7;
- Submitted: 2

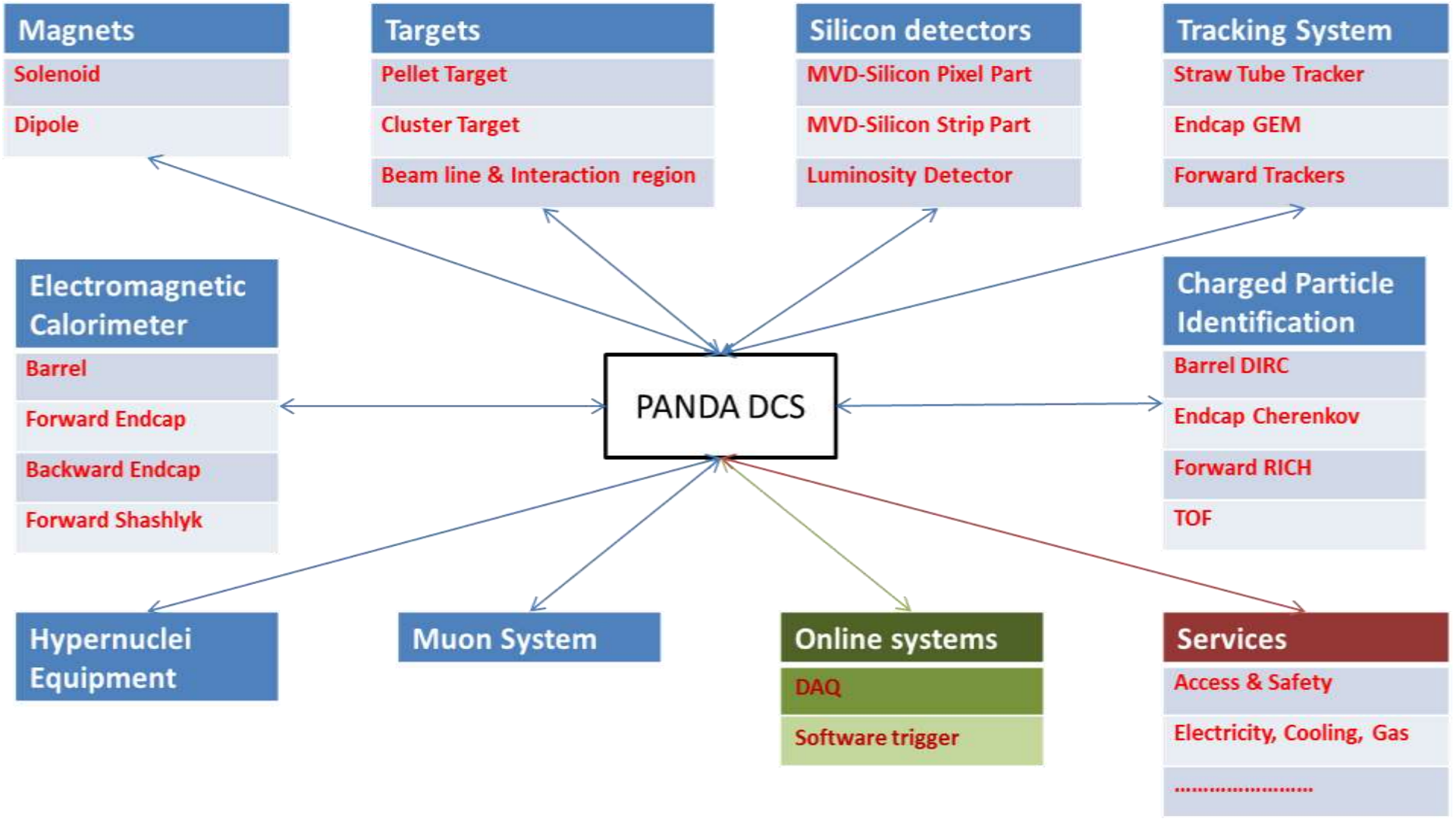
IFIN-HH responsibilities in :

- Straw Tube Tracker TDR (2013)
- Controls TDR (06/2016)

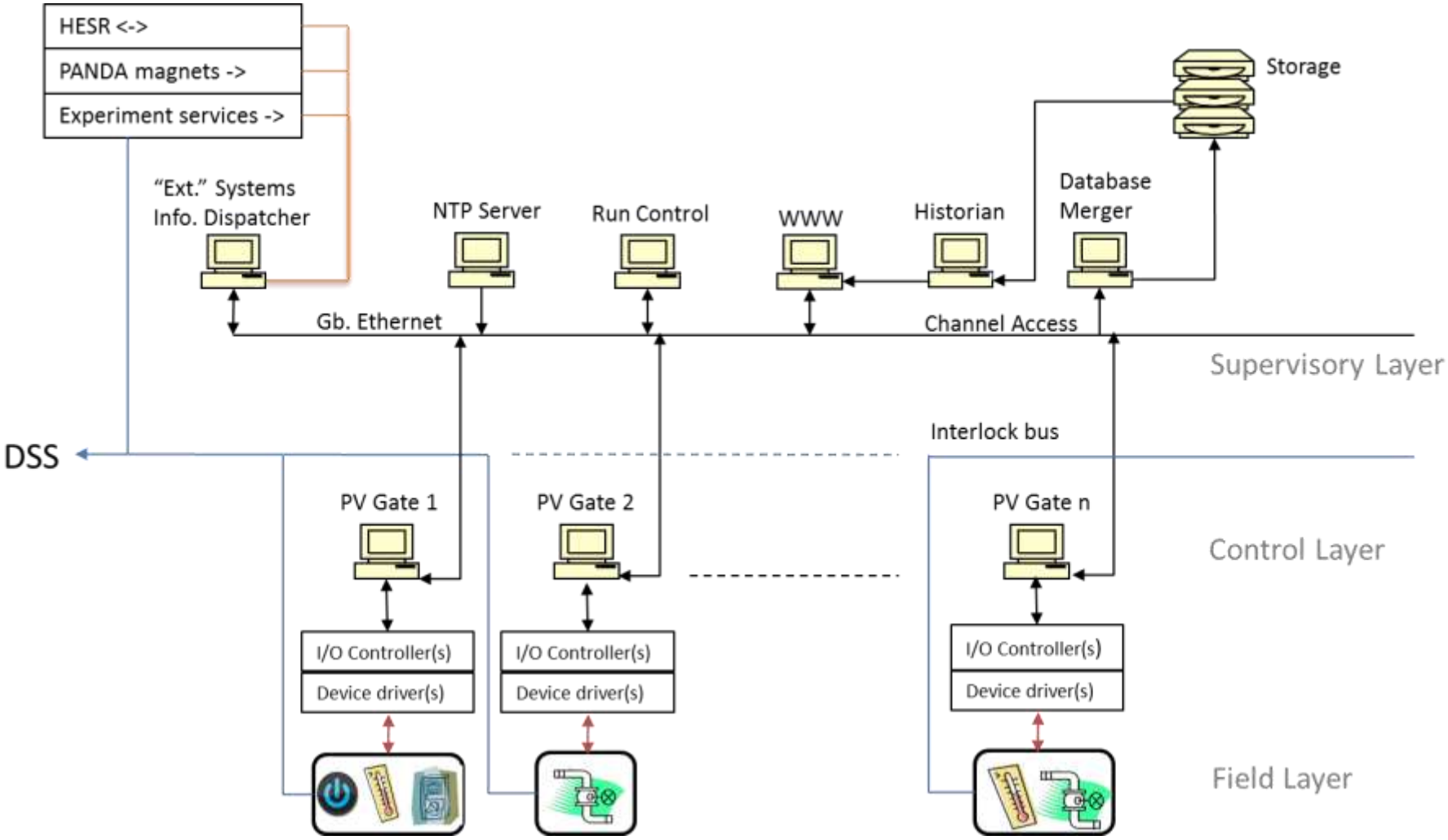
System	Submission *Expected*	M3 (Approval) *Expected*
Target Spectrometer EMC		08/08/2008
Barrel EMC		08/08/2008
Backward Endcap EMC		08/08/2008
Forward Endcap EMC		08/08/2008
Solenoid		05/21/2009
Dipole		05/21/2009
Micro Vertex Detector (MVD)		02/26/2013
Straw Tube Tracker (STT)		01/29/2013
Cluster Jet Target		08/28/2013
Muon System		09/22/2014
Forward Shashlyk Calorimeter	17/6/2015	*12/2015*
Luminosity Detector	*10/2015*	*3/2016*
Forward TOF	*12/2015*	*6/2016*
Forward Tracking	*12/2015*	*6/2016*
Barrel DIRC	*6/2016*	*12/2016*
Hypernuclear Setup	*3/2016*	*09/2016*
Pellet Target	*6/2016*	*12/2016*
Controls	*6/2016*	*12/2016*
Planar GEM Trackers	*9/2016*	*3/2017*
Barrel Time of Flight (TOF)	*9/2016*	*3/2017*
DAQ	*9/2016*	*3/2017*
Computing	*9/2016*	*3/2017*
Endcap Disc DIRC	*6/2017*	*12/2017*
Silicon Lambda Disks	tba	tba
Forward RICH	tba	tba

tba: to be announced Status 11/7/2015

PANDA Central DCS



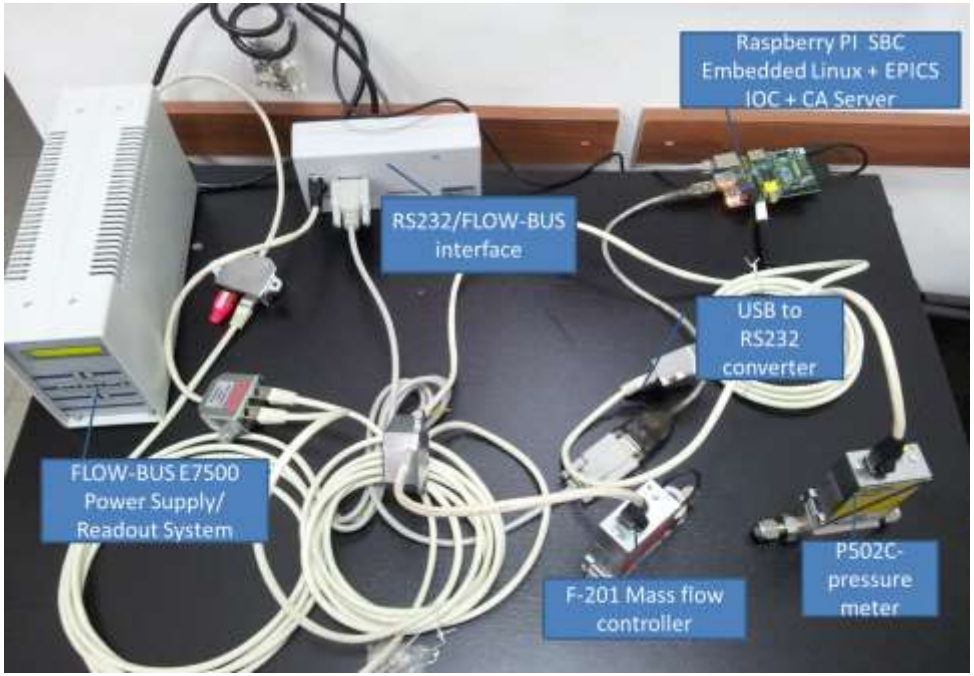
PANDA Central DCS



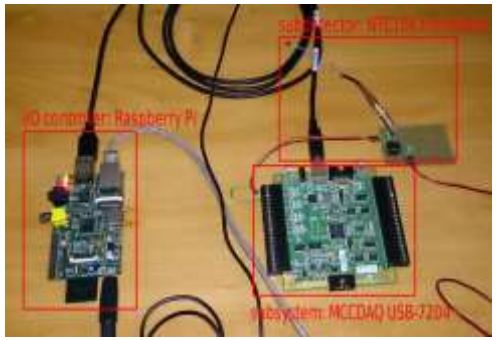
PANDA Central DCS

Previous developments done in DFPE:

- ARM SBC used as Epics I/O Controller (Rpi, Beaglebone, PandaBoard); CAN Bus communication benchmarks;
- STT Gas System: Rpi Epics I/O – RS232 - Bronkhorst FlowBus;
- Commercial USB Multifunction DAQ Board interfaced with EPICS.



Sender	Receiver	Mean Rcv. CAN fr/s	CAN Bus Load (%)
RPi & Kvaser	PXI-8464	3100	45
PandaBoard ES & Kvaser	PXI-8464	5700	82
BeagleBone & Kvaser	PXI-8464	5370	77
Laptop & Kvaser Windows	PXI-8464	5850	84
Laptop & Kvaser Linux	PXI-8464	6050	87
PXI-8464	Laptop & Kvaser	4500	65
PXI-8464	BeagleBone & Kvaser	4400	64
PXI-8464	PandaBoard ES & Kvaser	4350	63
PXI-8464	RPi & Kvaser	3050	44



PANDA Central DCS

- Crate control via SNMP and EPICS, Detector Control System Session, LIII PANDA Collaboration Meeting, 08 June 2015;

- **Software interface PANDA – HESR (EPICS – WinCC) =>** to be presented at the LV Panda Collab. Meeting, December 2015.

Other activities:

- Chairing of PANDA DCS group;
- Maintenance of PANDA DCS Wiki page.

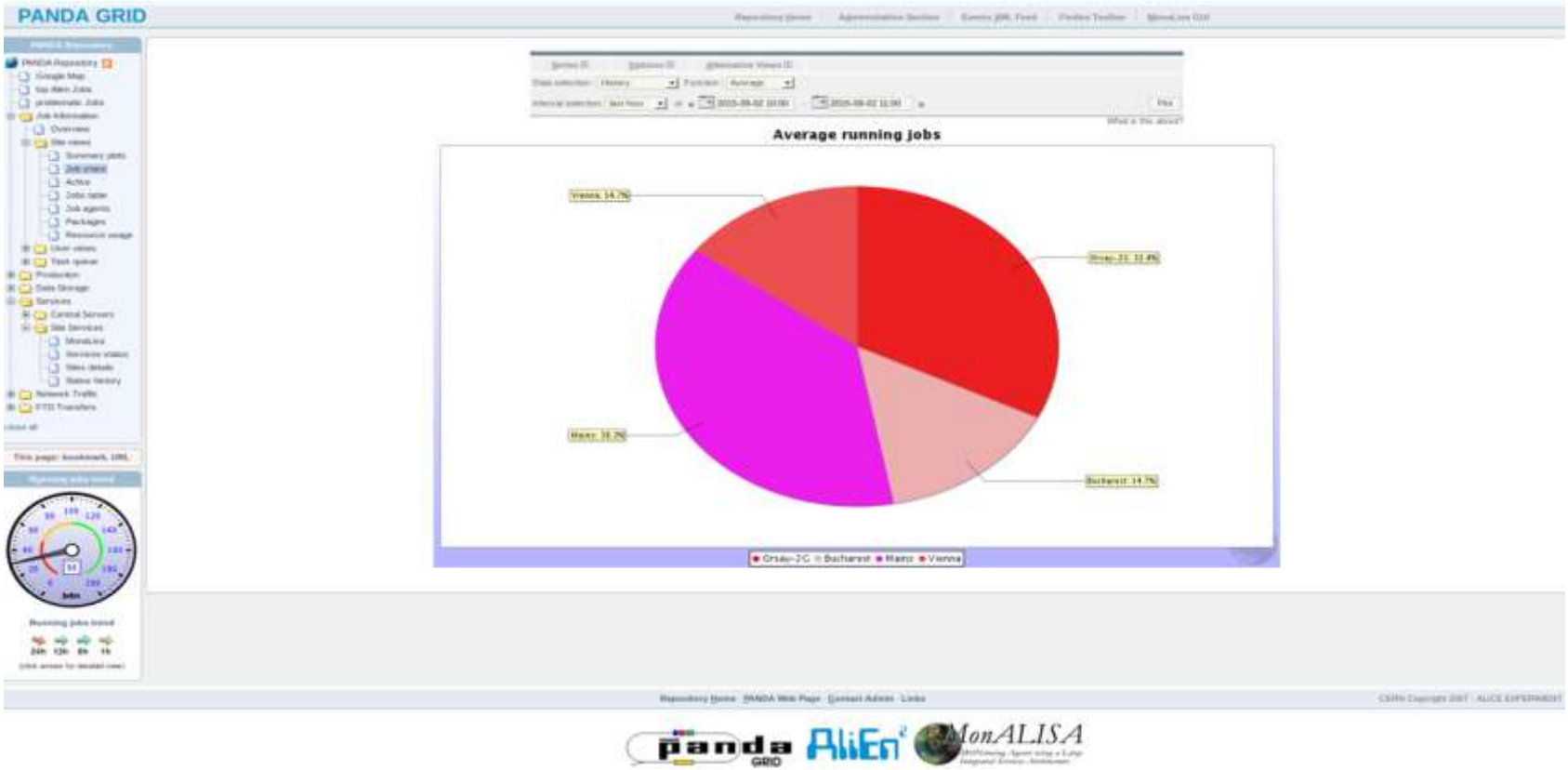
PANDA GRID

PandaGrid: distributed computing system, used for the production, reconstruction and analysis of simulated data

IFIN-HH support for PANDA GRID

Computing infrastructure: 48 cores + 1.8 TB storage in IFIN-HH (out of about 1000 active cores in PandaGrid)

Tasks: maintenance of grid middleware and PANDA software packages, monitoring of grid services, hardware maintenance.



September 2015: 14.7% from the average running jobs were completed on IFIN-HH site