

NSTX Run Statistics and Update

Friday November 16, 2001

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FY 2001 Run Statistics

Diagnostics

CAMAC/Network acquisition

Hardware upgrades

UNIX MDSplus enhancements

Control Room Space/Equipment

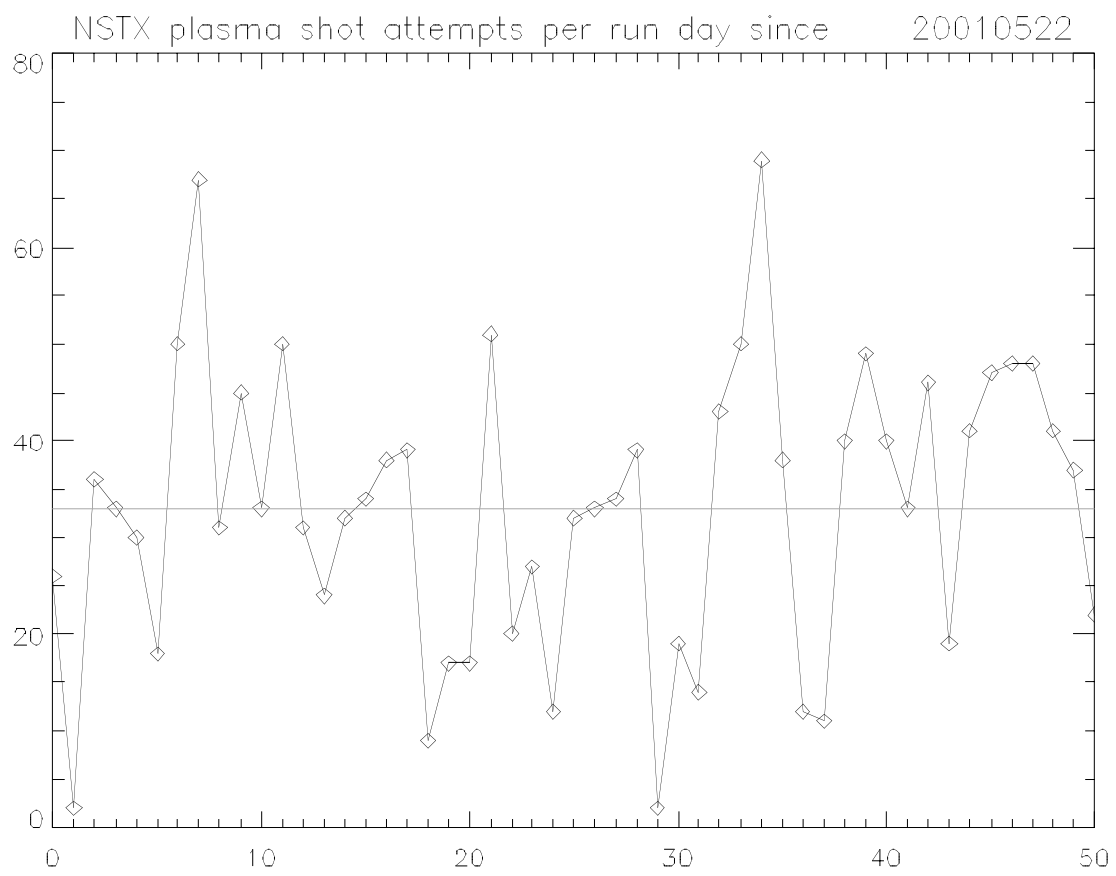
Relational Database projects

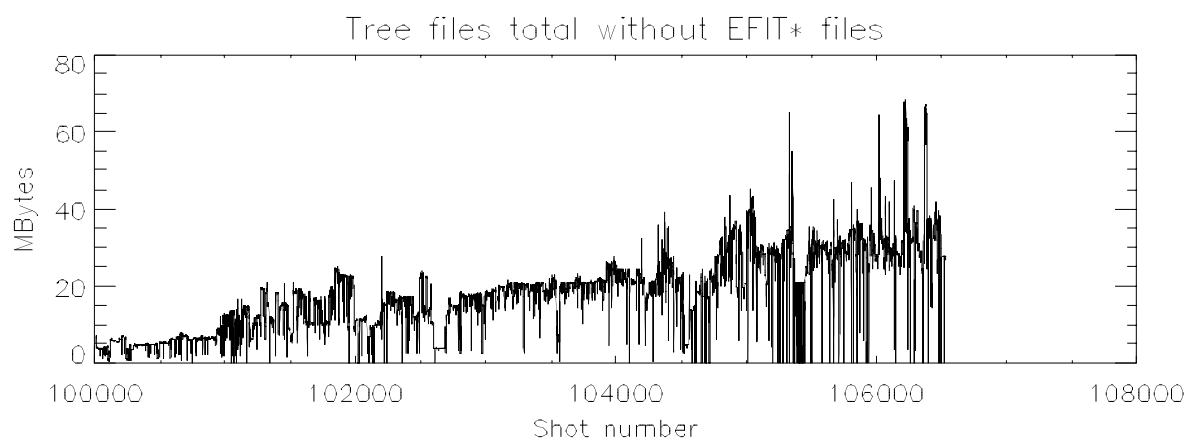
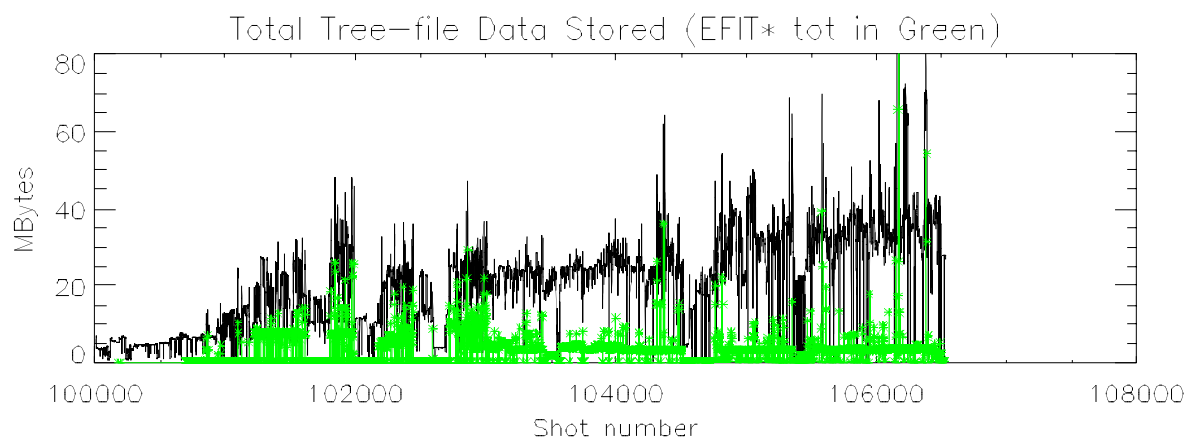
Increased Web functionality

**First steps toward Web-based analysis facility for
authenticated users**

NSTX Shots by date for 2001

	First shot	Last shot		First shot	Last shot		First shot	Last shot
Apr			May			Jun		
24	104580	104580	1	104611	104629	1	104934	105000
26	104585	104585	2	104630	104648	4	105001	105031
27	104586	104598	3	104649	104651	5	105032	105076
30	104599	104610	9	104655	104657	6	105078	105110
			21	104735	104737	7	105111	105160
			22	104738	104763	8	105161	105191
			23	104764	104765	11	105192	105215
Jul			24	104766	104801	12	105216	105247
			25	104802	104834	13	105248	105281
2	105580	105613	29	104836	104865	14	105282	105319
3	105614	105652	30	104866	104883	15	105320	105358
5	105653	105654	31	104884	104933	16	105360	105368
6	105657	105675				21	105370	105386
9	105679	105692				24	105405	105455
10	105693	105735				25	105456	105475
11	105736	105785				26	105476	105502
12	105786	105854				27	105503	105514
13	105856	105893				28	105515	105546
16	105894	105905				29	105547	105579
17	105966	105976						
18	105977	106016						
19	106017	106065						
20	106066	106105						
23	106106	106138						
24	106139	106184						
25	106185	106203	Aug					
26	106204	106244						
27	106245	106291	1	106391	106431			
30	106295	106342	2	106432	106468			
31	106343	106390	3	106469	106490			





RECENT FILE SIZES

Data not yet stored in shot trees:

UCLA MMRW Reflectometer

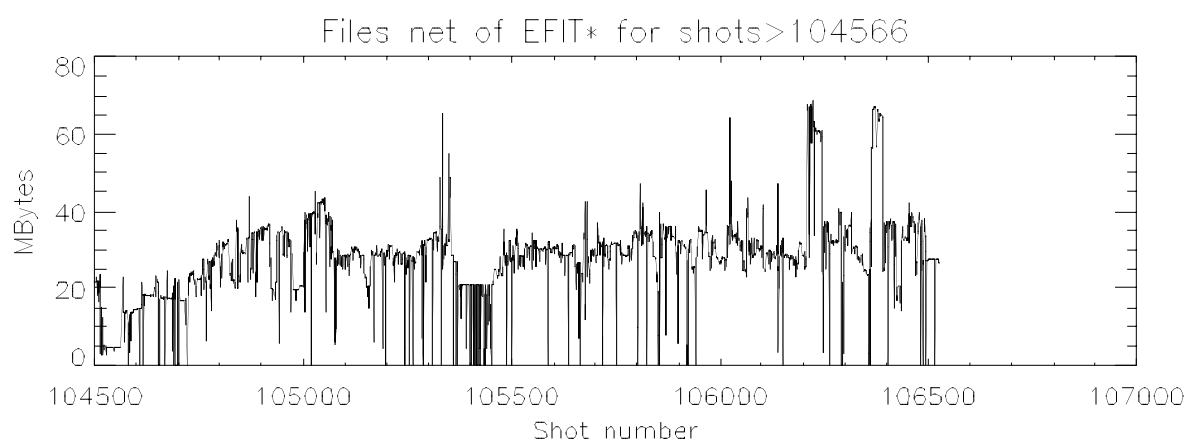
3 files totaling 48 MB/shot when acquired

Interim CHERS

2 files totaling 8 MB/shot when acquired

To become 12 MB next run?

Data stored in shot trees:



NSTX DIAGNOSTICS

	DIGRAPH CAMAC	KEES	NETWORK	METHOD
BLUE New in FY2001				
RED New in FY2002				
Bolometer Array	BA	X		
Diamagnetic Loop	DM		X	EPICS CAMAC: NFS ->MDSplus direct
Electron Bernstein Wave	EB	X		
ECH Electron Cyclotron Heating	EC	X		
NPA Neutral Particle Analyzer (Energetic Neutrals)	EN	X		
Fast Camera	FC		X	PC - Video Only
Fast H-Alpha	FH	X		
IFLIP Interim Fast Lost Ion Probe	FI	X		
High Harmonic Fast Wave	FW	X		
Neutral Beam	NB		X	EPICS CAMAC
UCSD Fast Probes	FP	X		
FIReTIP Far Infrared Tang Interferom.	FT	X		PC & PLC for control
Filtered Visible (Filter scopes)	FV	X		
Gas Puff: imaging	GP	X		plus Video
GRITS: GRazing Incidence Time- resolved Spectrometer	GR	X		original (old) PC broke
Coaxial Helicity Injection (CHI)	HI	X	X	EPICS
Interim CHERS	IC		X	PC FTP
Infrared Cameras				Video only
Lower Divertor 1D CCD (2 currently)	LD		X	PC LabView MDSplus
Locked Mode Coils	LM	X		
Langmuir Probes (new)	LP		X	EPICS CAMAC
Micro Ion Gauge (MIG)	MI	X		
Mirnov Magnetics	MM	X		
Electron Density (interferometer)	NE	X		
Neutrons (grouped: 3 measurements)	NF	X		
Operations Magnetics	OP	X		
High Frequency Coils			X	PC FTP
Shot mode RGA (residual gas analyzer)	RG		X	PC Visual Basic MDSplus
SPRED Survey VUV Spectroscopy	SP		X	PC VB MDSplus
Thermocouples	TC		X	EPICS CAMAC
Multi-Pulse Thomson Scattering	TS	X		

Ultra-Soft Xray Array	US		X	PC LabView SAMBA
Visible Bremsstrahlung	VB	X		
VIPS VISIBLE Plasma Spectroscopy	VS	X		
VIPS-2	XC		X	PC VB MDSplus
Xray Crystal	XC	X		
Hard Xray Monitor	XH	X		

FY2002 Diagnostics Not Yet Operational

		CAMAC	Network	
Soft X-ray Pinhole Camera (XRPC)			X	PC/Labview-MDSplus
Fast Lost Ion Probe (sFLIP)		X		
GEM X-Ray Detector			X	PC/new
Divertor Fast Visible Camera			X	PC/new
1 mm Interferometer		X		
Divertor Bolometer Array		X		
Diamond Detector		X		
Edge Rotation			X	PC ?
Fast X-Ray Camera			X	PC ?

PC Support is available thanks to

Gretchen & Dana for data acquisition support in LabView, Visual Basic & IDL

Help Desk staff and Tom Carroll for O/S & network configuration support

Harry Towner and Gary Oliaro for crisis assistance

Machine Operations

EPICS and Plasma Control Data Stored in MDSplus

Upgraded on a frequent basis

EPICS NFS/VMS task to write to MDSplus tree to be replaced by direct writes via UNIX MDSplus client routines

Plasma Control storage a mixture of NFS file transfer and direct MDSplus writes from PPCC/RICH

NSTX Hardware Upgrades

PPLCC - Second Disk Cabinet (as previously presented)

Same hardware configuration as first

6 shelf capacity - two purchased and populated with 12 36GB disks

RAID 5, extra power supplies

355 GB new capacity

multi-port hub with HSZ70 controller

only IO connected as server for now

will migrate older data to this cabinet

Control Room

6 SCSI Channel RAID Array 8000

replaced single channel controller

256 MB cache instead of 4 MB

populated with 7 10,000 RPM 36GB disks

2 RAID5 sets of 72GB each plus spare

144 GB current storage vs 27 GB

extra power supplies

unit allows second host to be connected

unit allows second HSZ80 controller to be added

Two new printers

Xerox N4225 B/W Laser Printer

"Tektronix" Phaser 860DP (color)

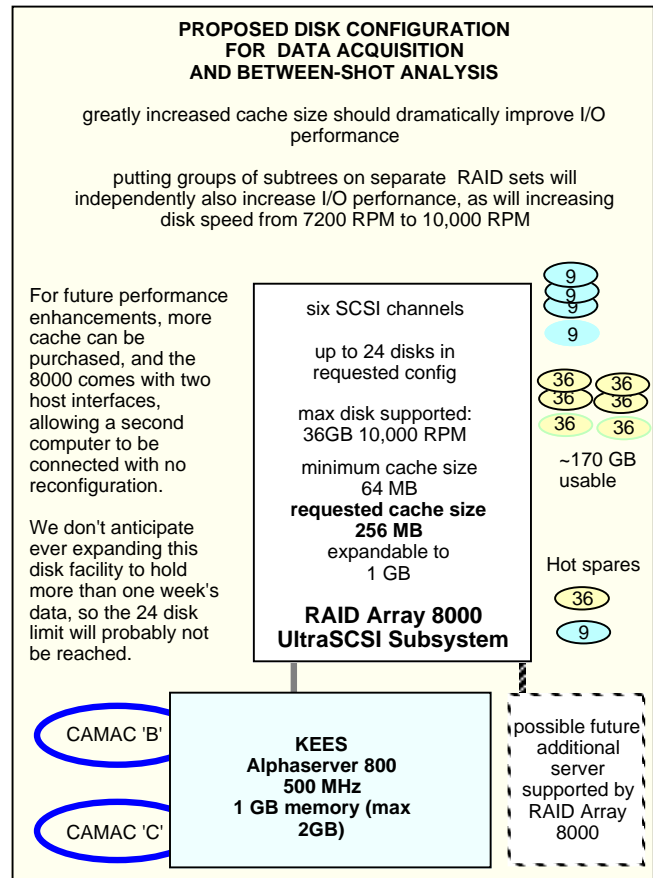
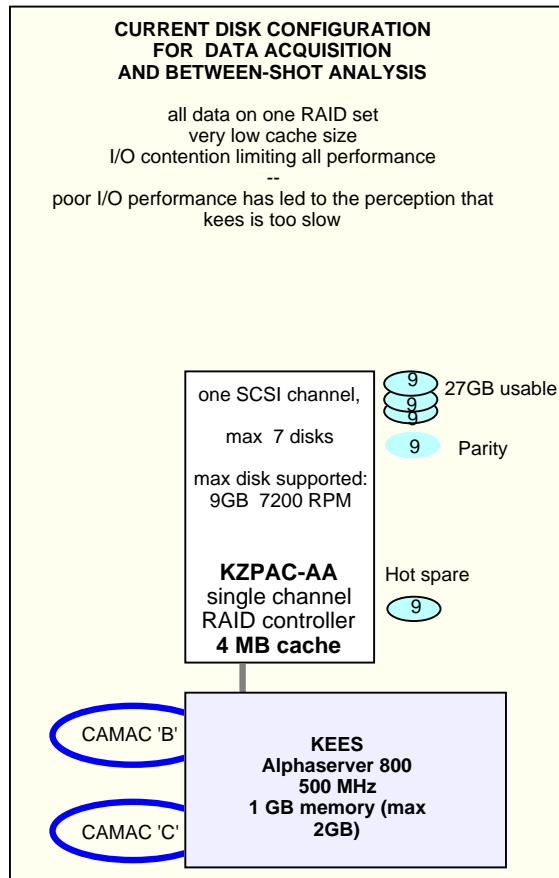
served from PC print server

old ones will serve Annex after upgrade - dedicated per O/S

Additional CAMAC highway planned for FY2002

Additional VMS server required (used DS20E ~\$6K)

**ALL between-shot MDSplus data accesses are served from kees
whether 'apparently from' kees, europa, birch or io**



MDSplus on UNIX

UNIX users have been able to access MDSplus data via IDL
and "MDSconnect" since 1999

Belatedly provided environment for some MDSplus tools to run on
Solaris, Digital UNIX (Tru64 UNIX) and Linux

TRAVERSER

SCOPE (without automatic updates - users still happy)

Issue of "low-level" vs "high-level" access

currently data expressions entirely evaluated on (VMS) server
taking advantage of UNIX cycles to require considerable effort
duplicated libraries of non-TDI code used in evaluations
or else clever rewriting of functionality in TDI

NSTX Shot Clock (not really MDSplus)

Java JScope (not web-based) available elsewhere, not yet installed here
very desirable tool; overlays, color, images

100 GB of analysis space to be provided on new disk server

Miscellaneous

Graphics "solution" found

6 copies of Adobe Illustrator in control room

reads PostScript created in IDL

reads CGM created from modeling codes

reads and writes PDF

reads Macintosh vector (and raster) PICT

(can't read MacDraw or Claris Draw native format)

30+ copies purchased for experimental physicists

(12+ copies purchased for theorists; Help Desk to support)

Remainder of presentation was via projection of NSTX Software
Web pages, organized at the following URL:

<http://w3.pppl.gov/~bdavis/tfm.html>