

MF(CIT2 & zLinux) Storage Performance Report For Citibank N.A



**Dated For:
Last one month
22nd May ~ 21st June**

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1 Management Summary

1.1 Performance Summary

In general all the subsystems are healthy. All the data taken at 1 hour interval from 22nd May till 21st June 11AM to 11 AM respectively

The following Frames in Cintech frames are covered in the report

- 17971 (USPV zLinux Production with COB)
- 28618 (USPV zLinux Production with COB)
- 35485 (USPVM zLinux Production without COB)
- 25613 (USPVM ZLinux Production with COB)
- 18342 (CIT2 Production with COB)
- 25805 (ZLinux RND / UAT)

And the following Performance Charts are analyzed

- Cache Read Hit %
- Cache Write Pending %
- FED Processor Utilization %
- BED Processor Utilization %
- Raid Group Busy %
- Total IOPS (Read + Write)
- Total MBPS (Read + Write)

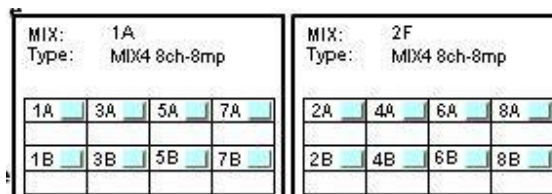
Legend :

Parameter	Description
Average or Peak IOPS	This is a dynamic value, based on Application IO. threshold cannot be defined
Read Hit %	The amount of data read directly from Cache in terms of %
Cache Write Pending %	The amount of data waiting in cache to be de-staged to disk
Front-End Processor (FED) Load %	FED processors load % that serves Host IO
Back-End Processor (BED) Load %	BED processors Load % that serves data transfer between the backend disk and cache
RAID Group Max Busy %	Physical Disk busy % in a given RAID Group as a single entity

2. Performance Detailed Reports

Legend for Port Numbering:

Adapter ID(Processor ID)	Port No
MIX-1A(0)	FED Port 1A, 5A
MIX-1A(1)	FED Port 3A, 7A
MIX-1A(2)	FED Port 1B, 5B
MIX-1A(3)	FED Port 3B, 7B
MIX-1A(4)	BED Processors
MIX-1A(5)	BED Processors
MIX-1A(6)	BED Processors
MIX-1A(7)	BED Processors



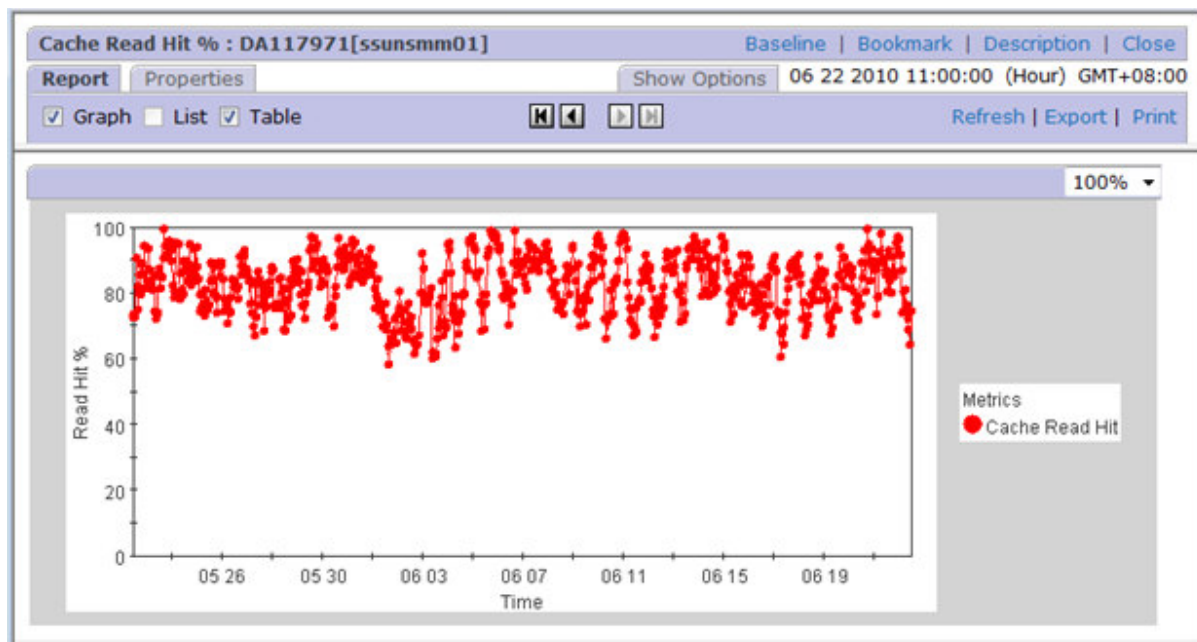
Note:

FED = Front-End Director; it serves host IO

BED = Back-End Director; it serves data transfer between backend disk and cache

2.1 Tuning Manager Report for 17971 (ZLinux PRD With COB)

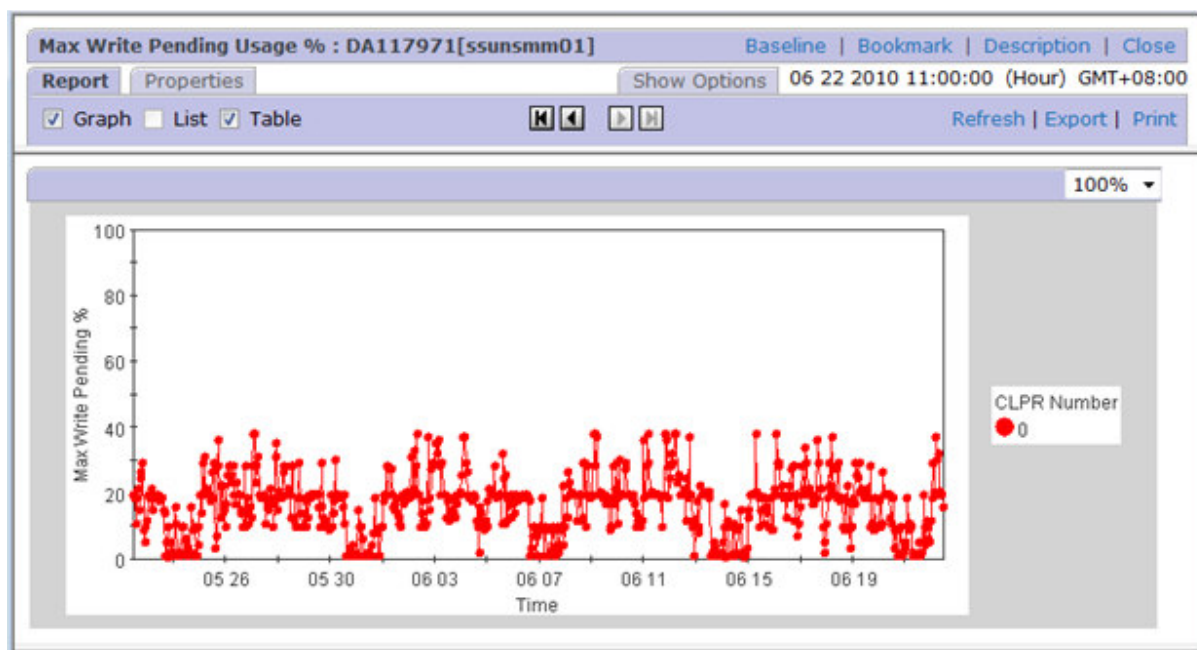
Cache Read Hit %



Comment: The above chart shows the cache Read Hit % is healthy

Recommendation: No action is required.

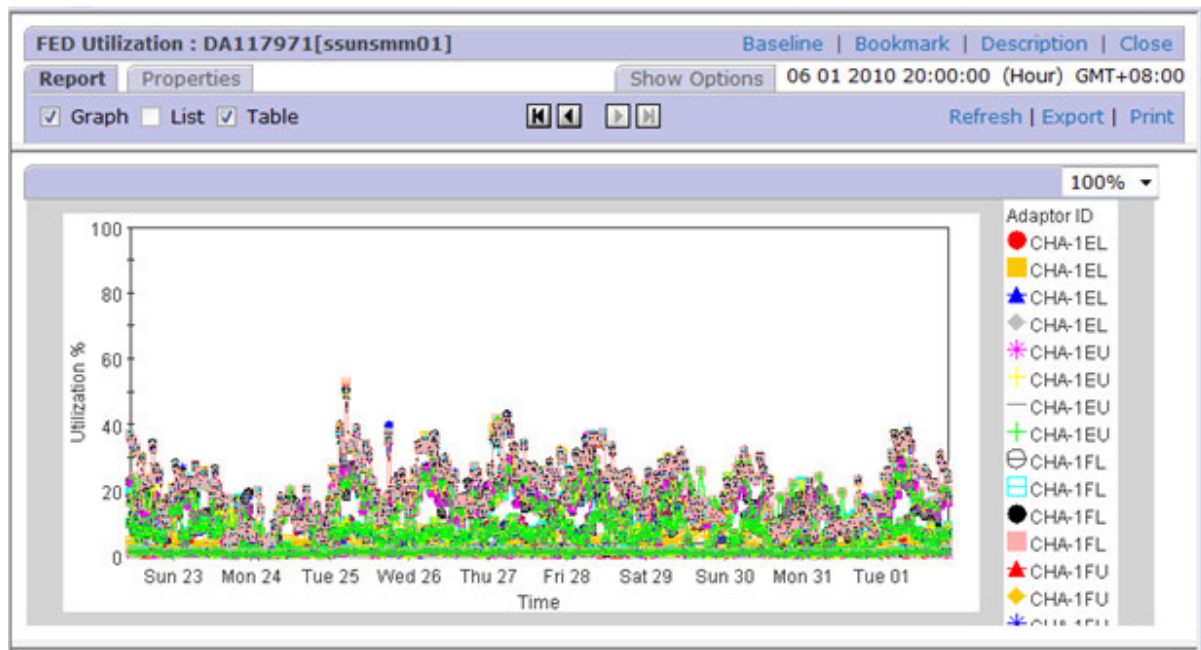
Cache Write Pending %



Comment: The above chart shows the cache write pending is peak at 40% at regular intervals.

Recommendation: No action is required. Continue monitoring for higher spikes

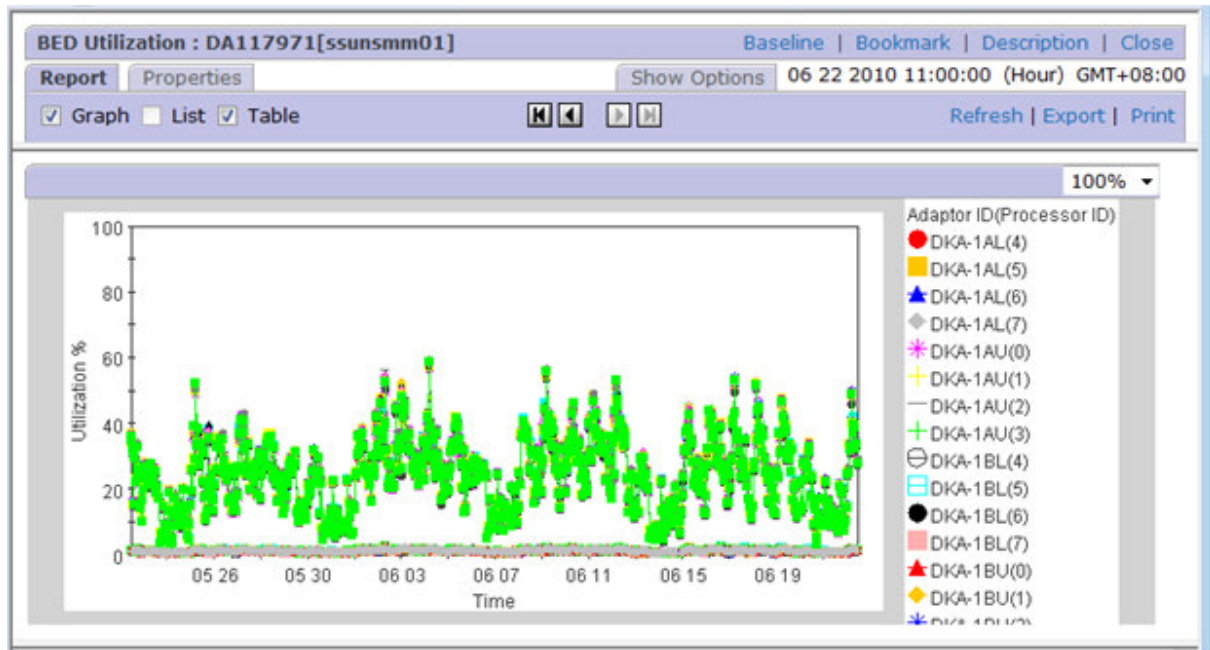
FED Processor Busy %



Comment: The above shows the FED performance and is healthy

Recommendation: No Action required

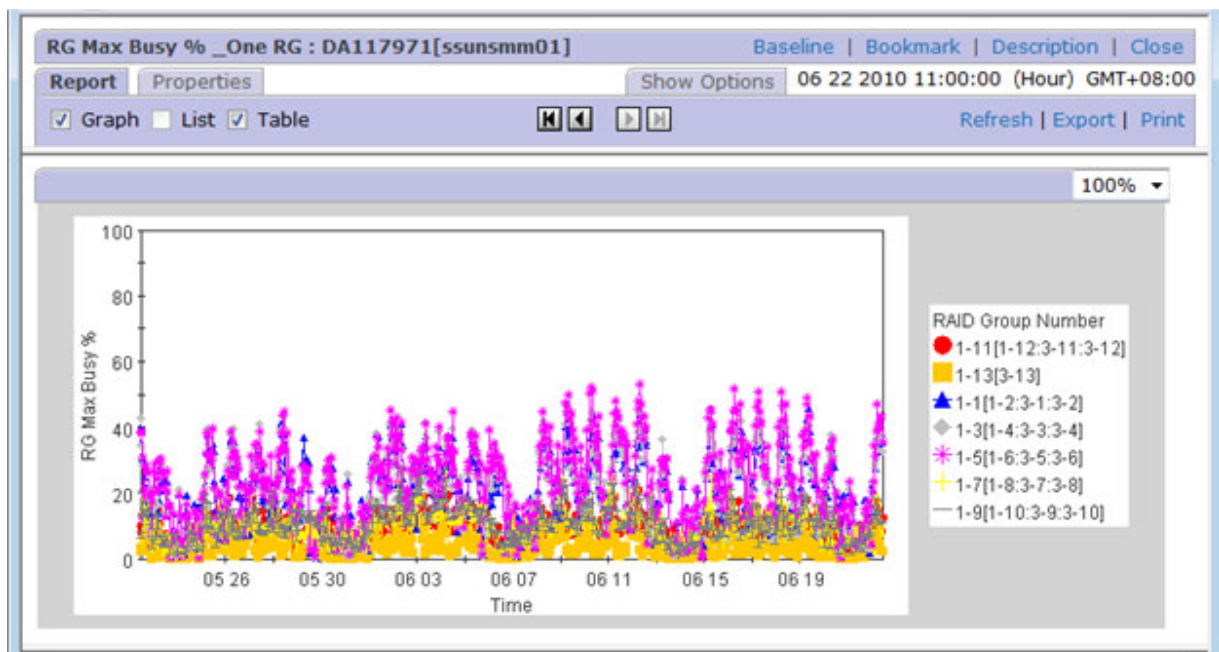
Back End Director Busy %



Comment: No concerns in the above chart. All the ports are healthy and well balanced except some spikes above 50%

Recommendation: No action is required.

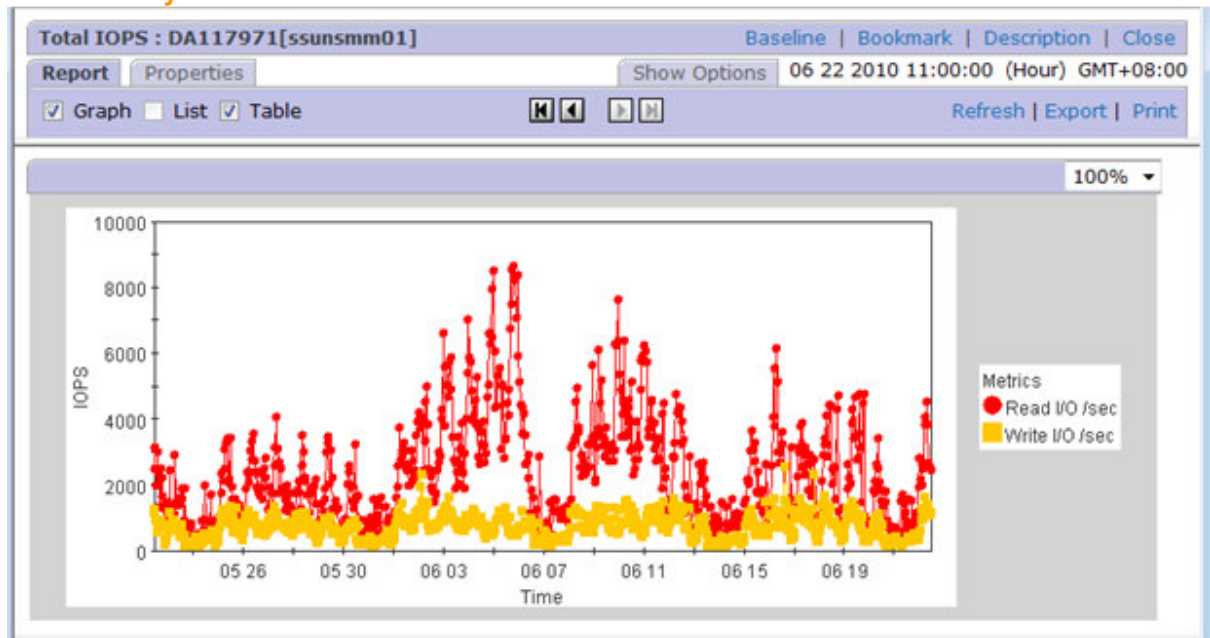
Raid Group Busy %



Comment: the above chart show the RG busy % is healthy and no concerns.

Recommendation: No Action Required

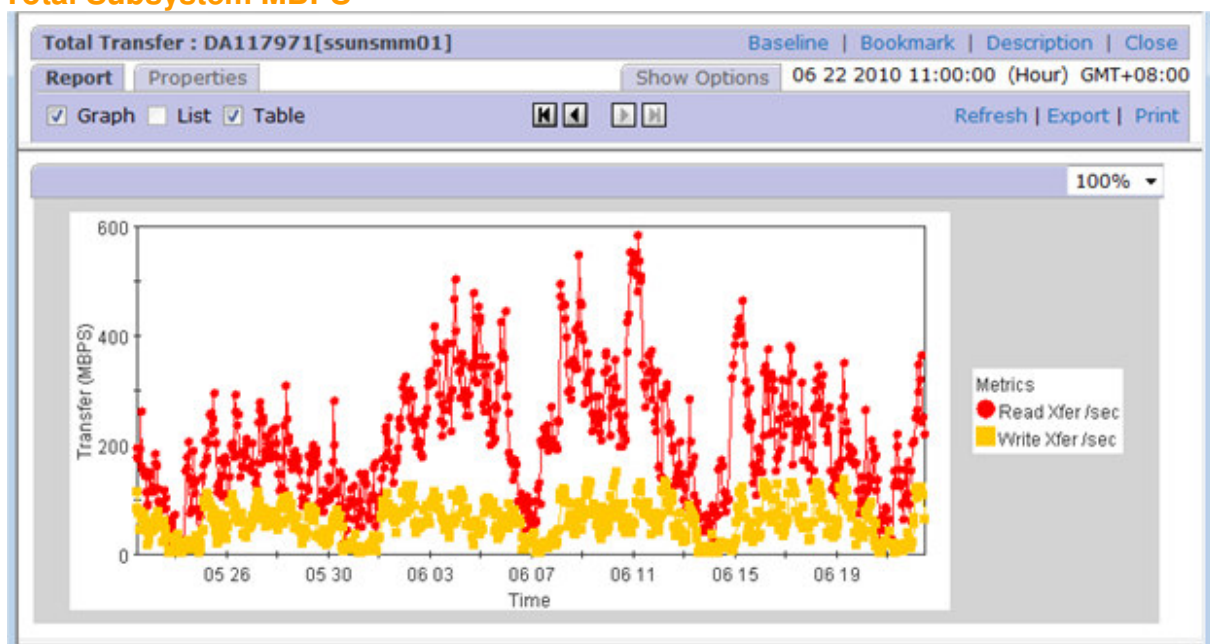
Total Subsystem IOPS



Comment: Total IOPS is peaked close to 10000 while read IO is higher than the write IO

Recommendation: No action is required.

Total Subsystem MBPS

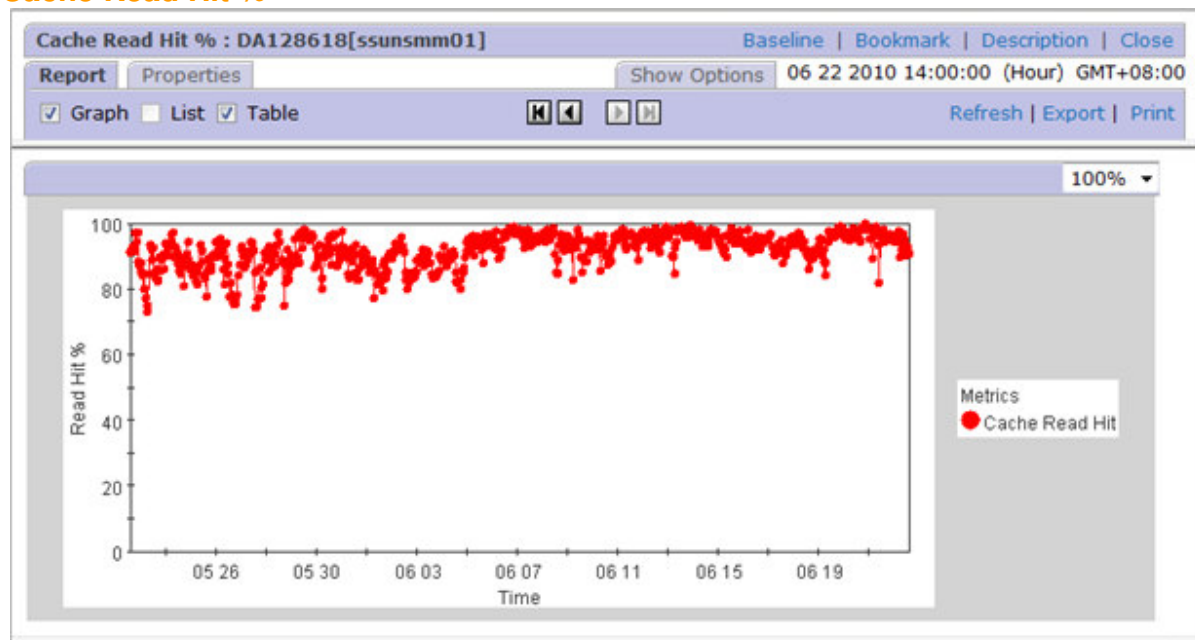


Comment: Total subsystem xfer rate is healthy.

Recommendation: No Action Required

2.2 Tuning Manager Report for 28618 (Zlinux PRD With COB)

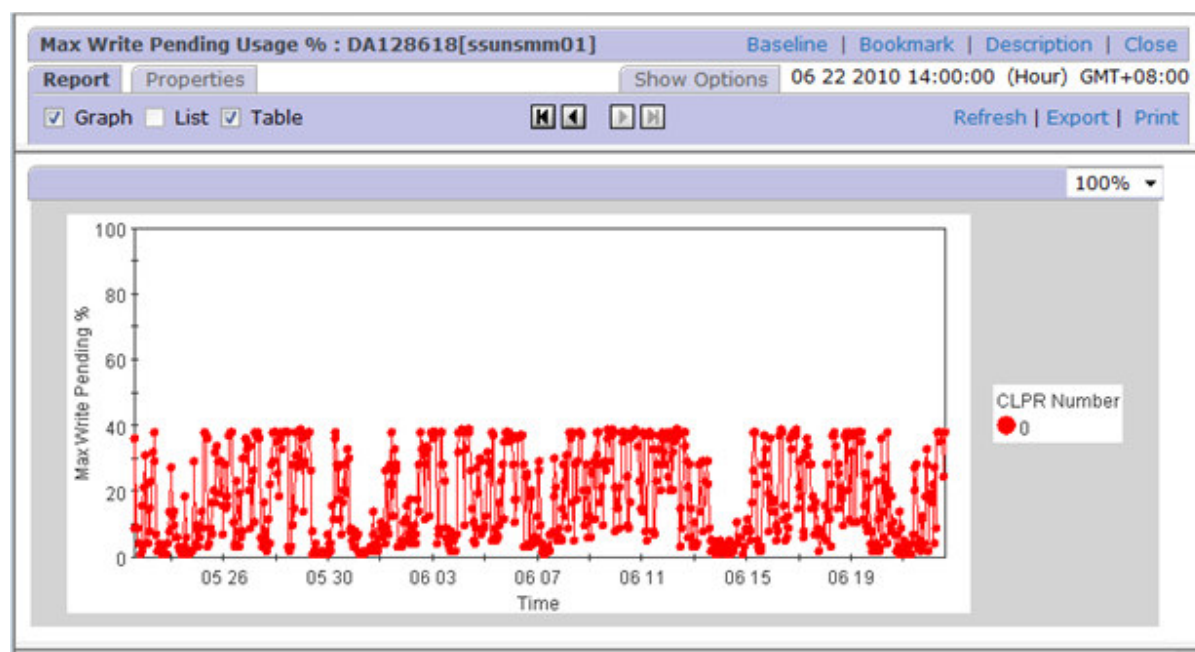
Cache Read Hit %



Comment: The above chart shows the Cache behavior in the subsystem is healthy. Since the Read hit % mostly above 80%

Recommendation: No action is required.

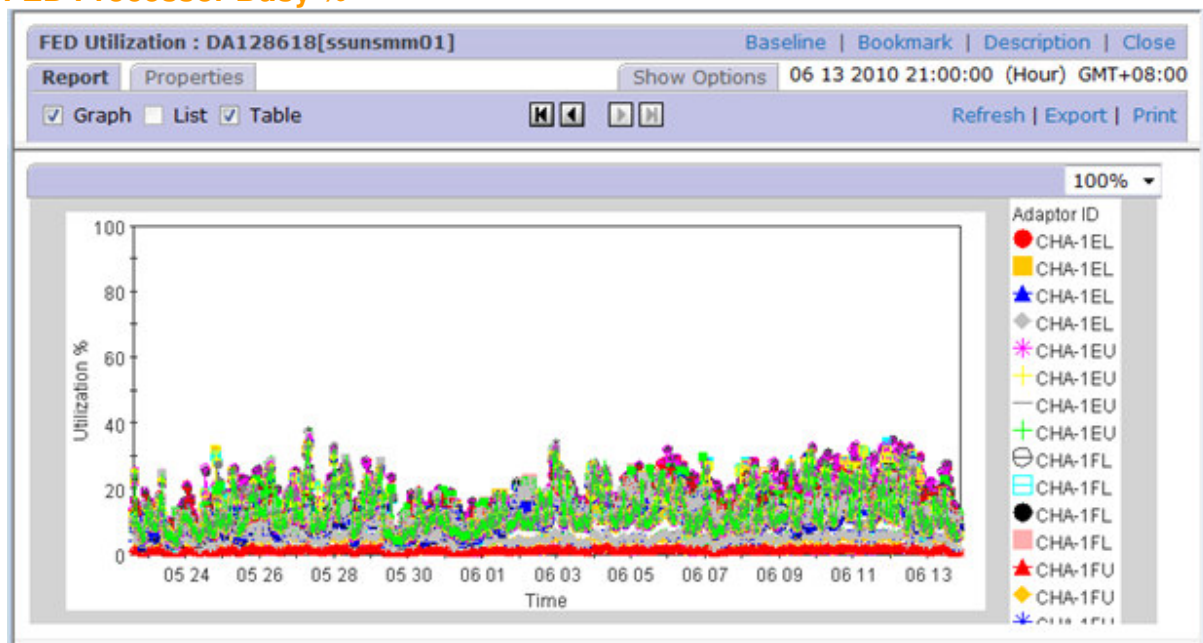
Cache Write Pending%



Comment: The above chart shows the Cache in the subsystem is healthy

Recommendation: No action is required.

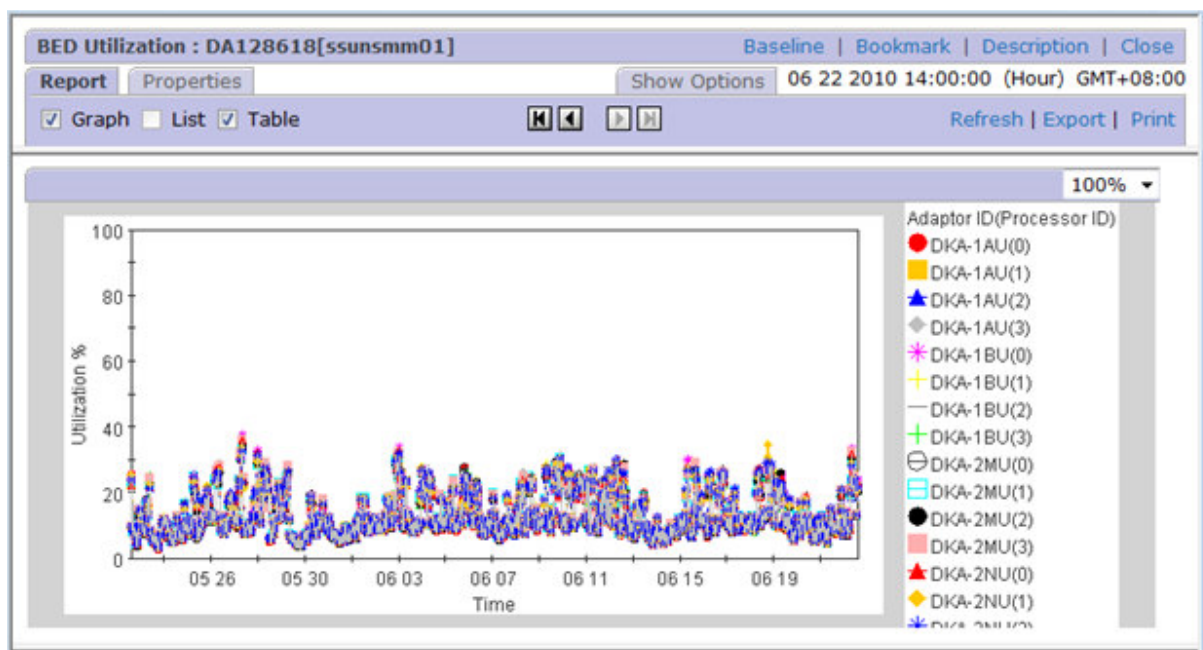
FED Processor Busy %



Comment: The above chart shows the FED in the subsystem is **healthy**

Recommendation: No Action required.

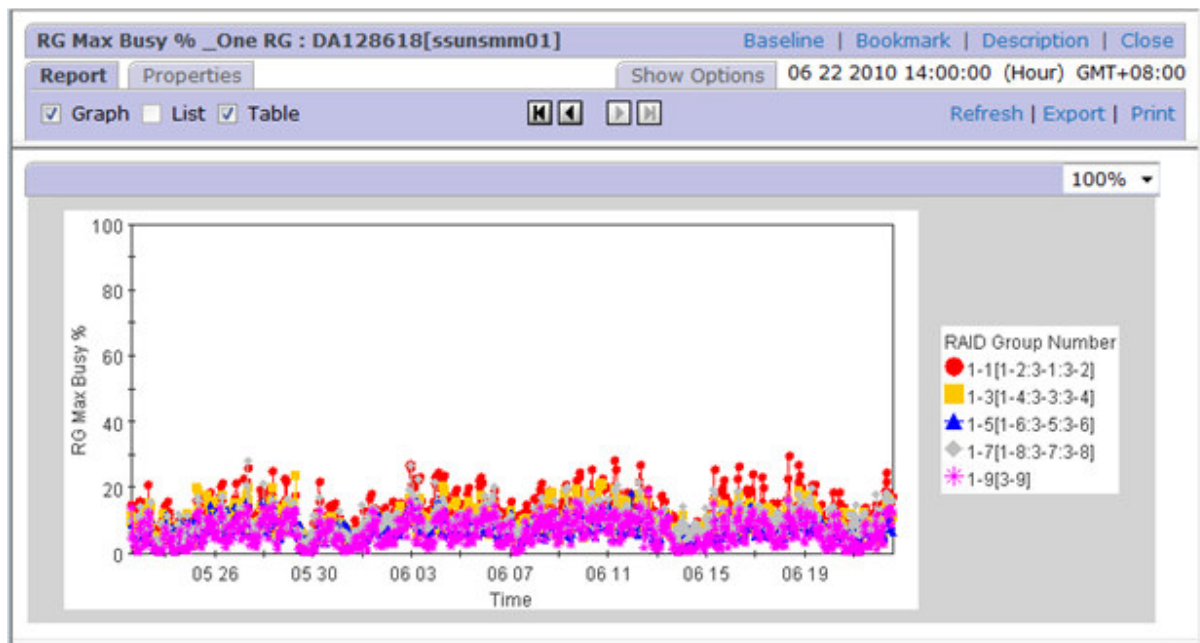
Back End Director Busy %



Comment: The above chart shows the BED in the subsystem is well balanced across cluster 1 and cluster 2 and also below the threshold value of 50%.

Recommendation: No action is required.

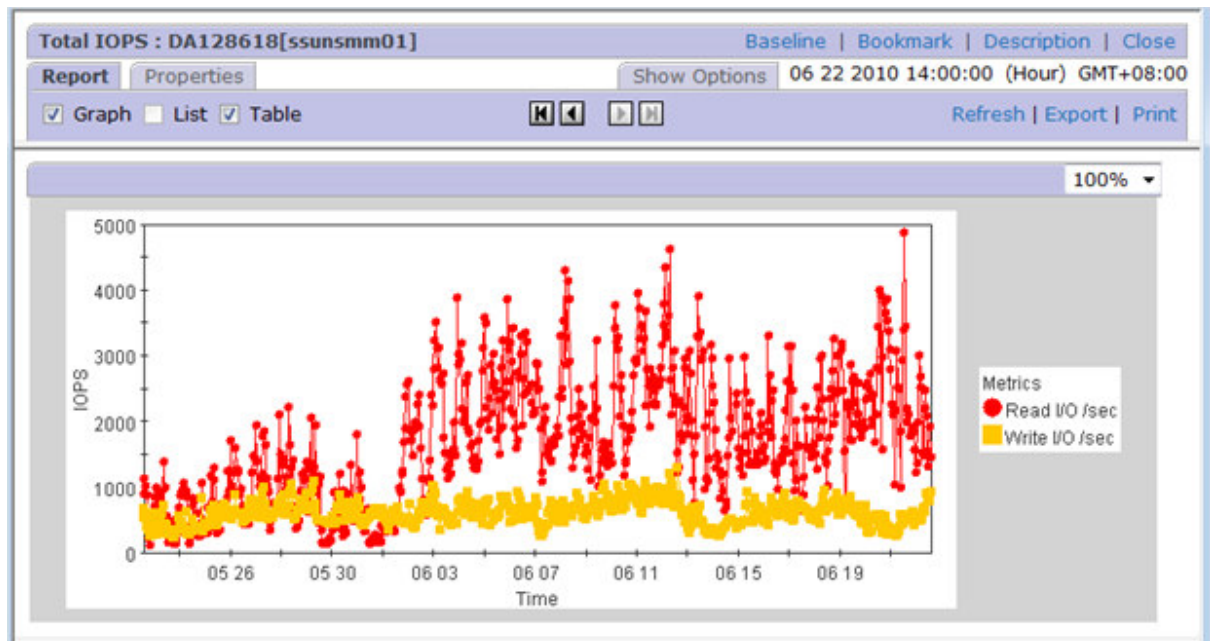
RAID Group Busy %



Comment: The above chart shows the AG in the subsystem is well balanced across BED and well below the recommended threshold of 50%.

Recommendation: No action is required.

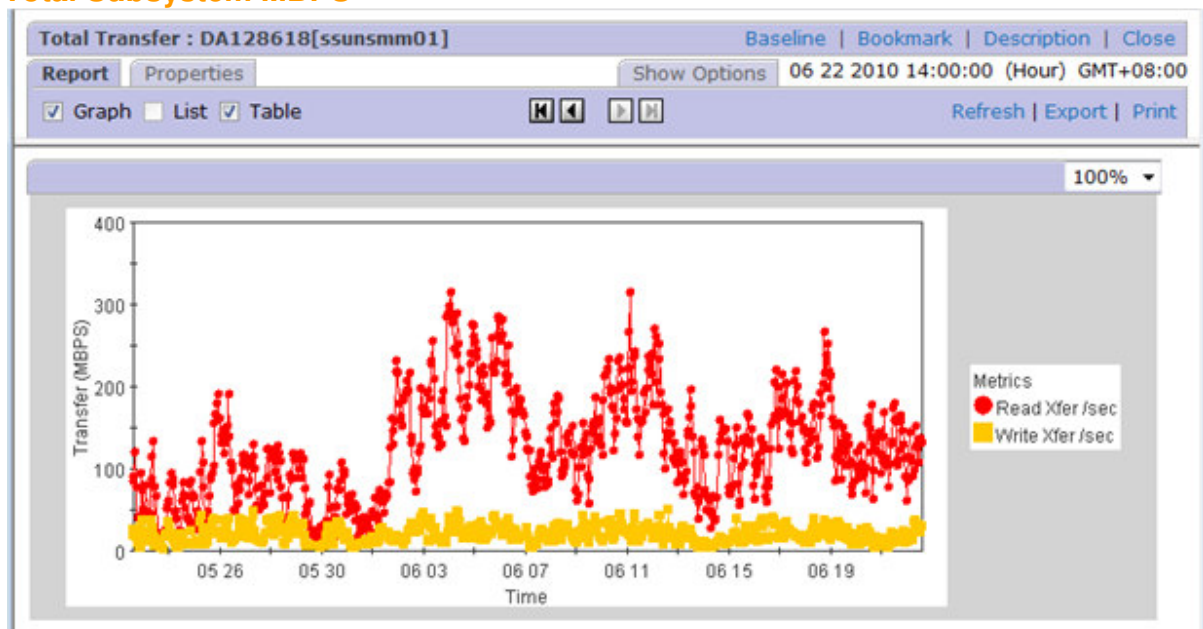
Total Subsystem IOPS



Comment: Total subsystem IOPS is about 6000 IOPS in average with generally more read I/O than write.

Recommendation: No Action Required.

Total Subsystem MBPS

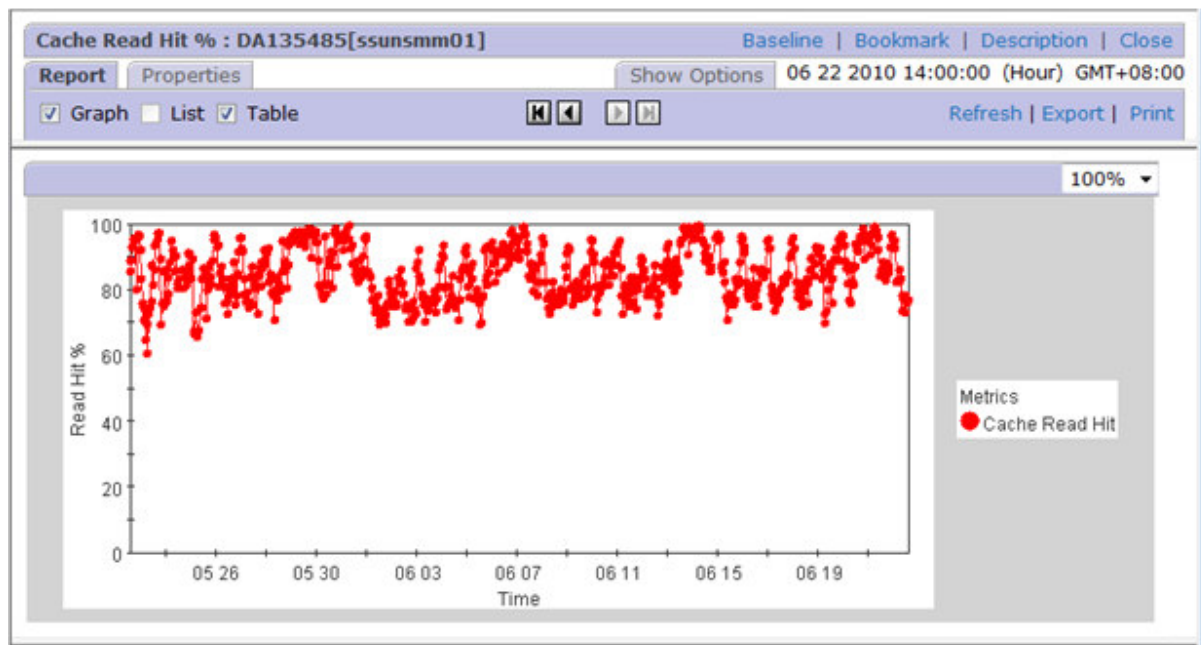


Comment: the above chart show the Subsystem xfer rate is healthy.

Recommendation: No Action Required.

2.3 Tuning Manager Report for 35485 (ZLinux PRD without COB)

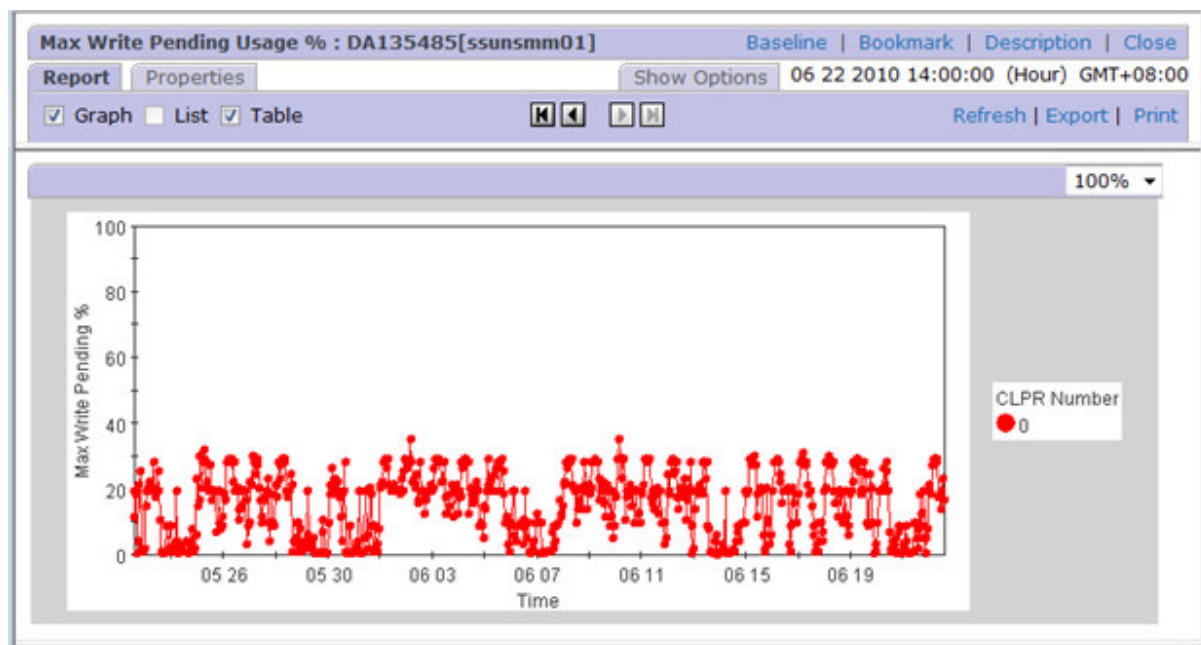
Cache Read Hit %



Comment: The average cache read Hit is 80%. And is healthy

Recommendation: No Action Required

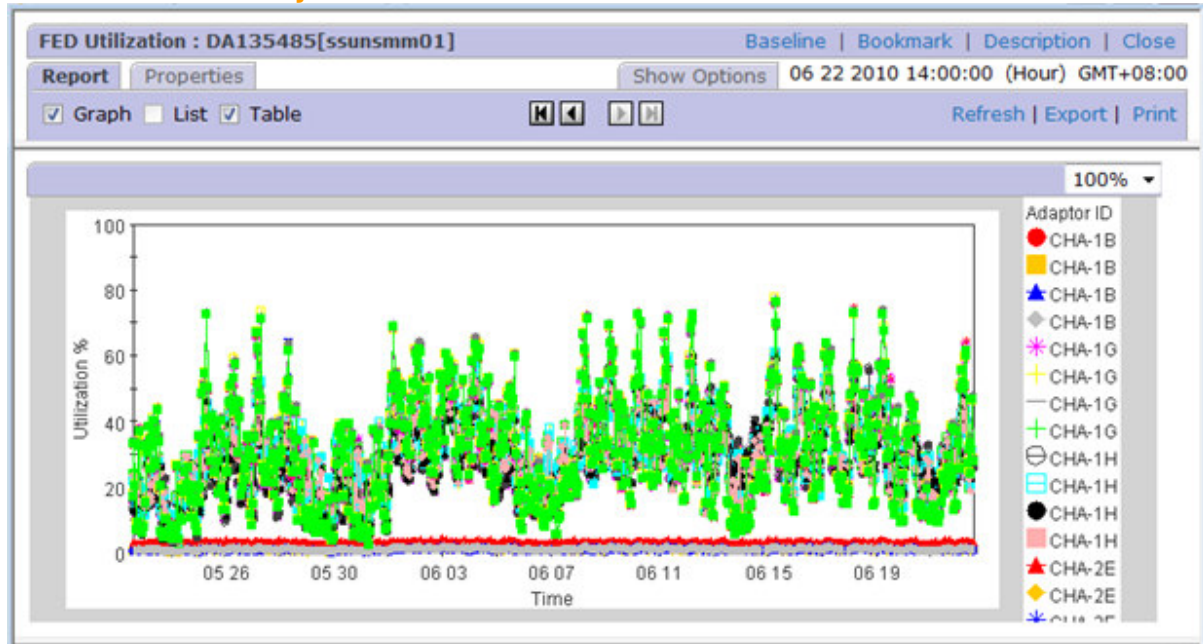
Cache Write Pending %



Comment: The average cache write pending is about 20%. And is healthy

Recommendation: No Action Required

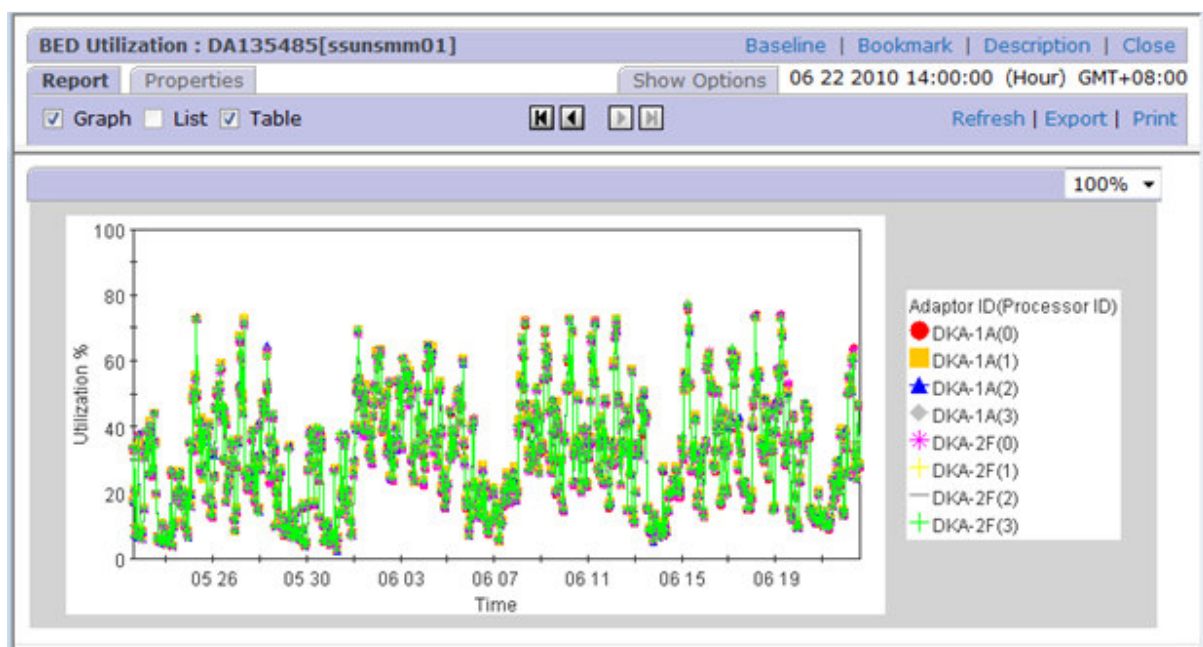
FED Processor Busy %



Comment: The above chart shows FED is well balanced and healthy except some spikes above 60%

Recommendation: No action required.

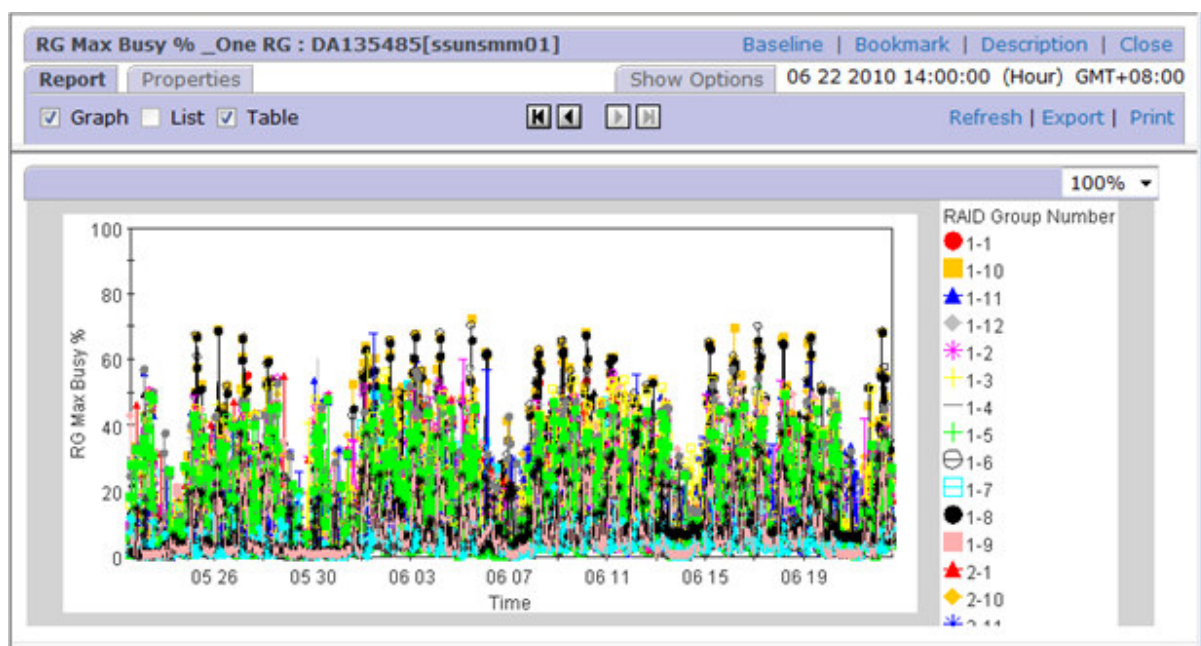
Back End Director Busy%



Comment: No concerns in the above chart. All the BED processors are healthy.

Recommendation: No Action Required

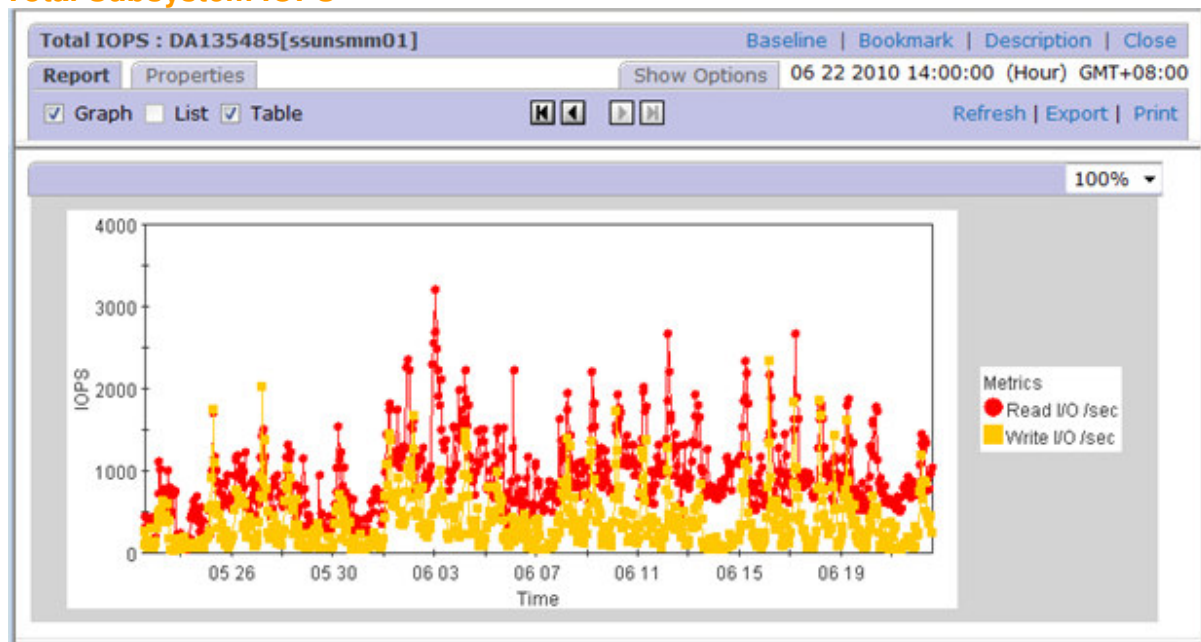
Raid Group Busy%



Comment: No concerns in the above chart. All the Raid Groups are healthy.

Recommendation: No action is required.

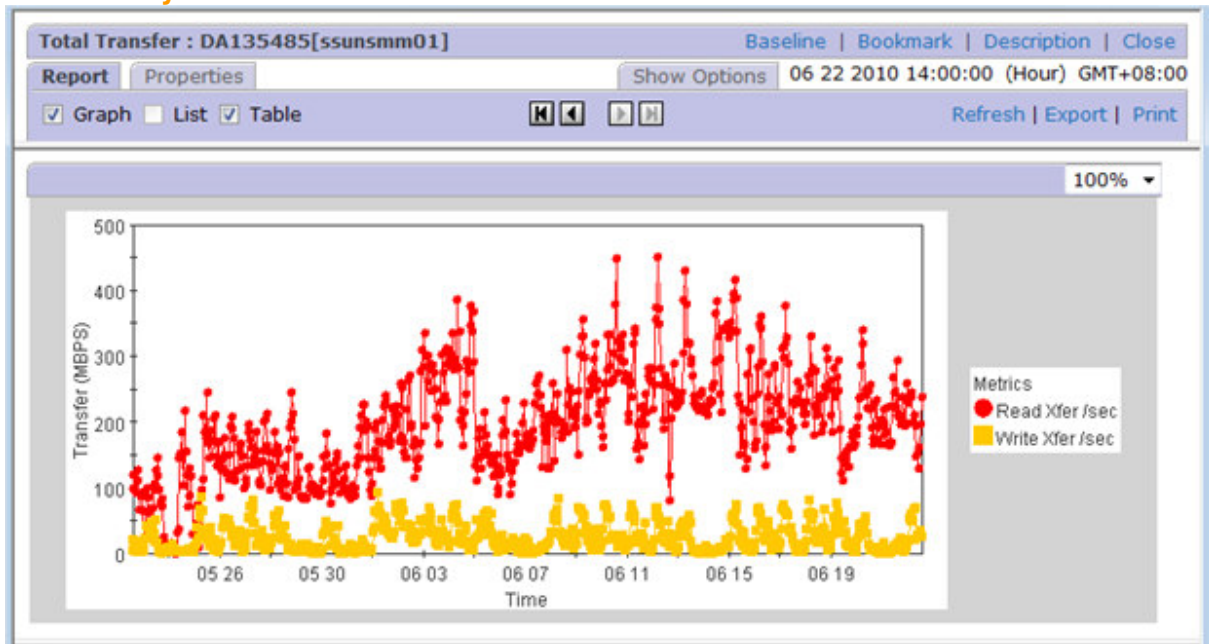
Total Subsystem IOPS



Comment: Total subsystem IOPS is about 4000 IOPS in average with generally more Write I/O than read. The subsystem is generally healthy

Recommendation: No action is required.

Total Subsystem MBPS

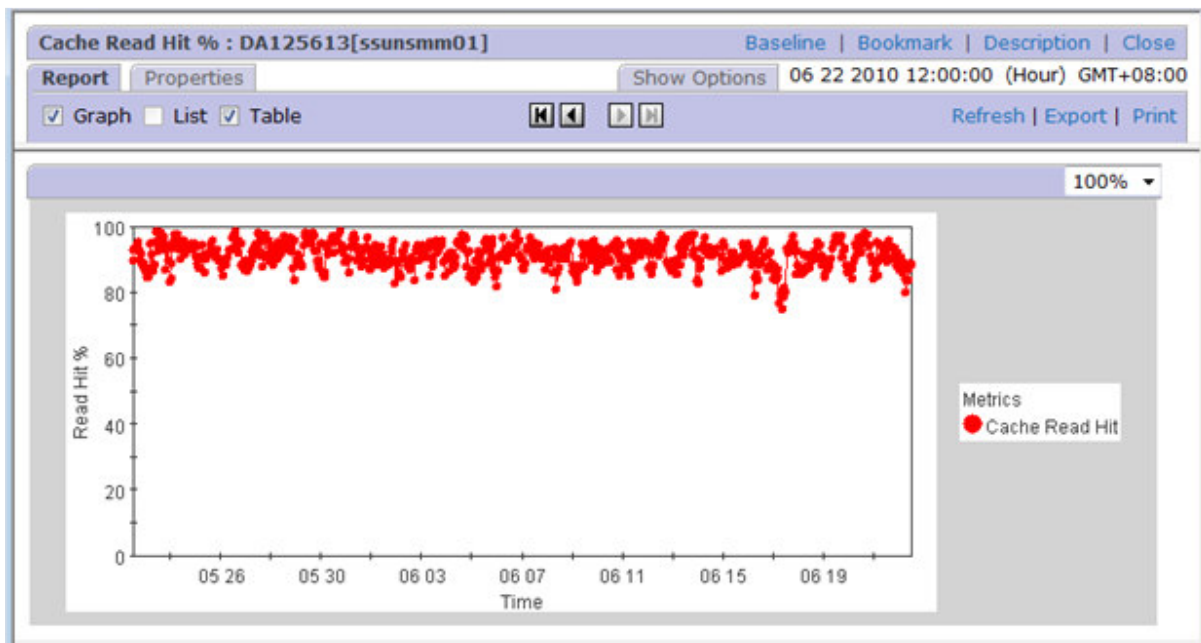


Comment: Total subsystem xfer rate is about 200 MB/s in average with generally more read I/O than write. The subsystem is healthy

Recommendation: No action is required.

2.4 Tuning Manager Report for 25613 (ZLinux PRD with COB)

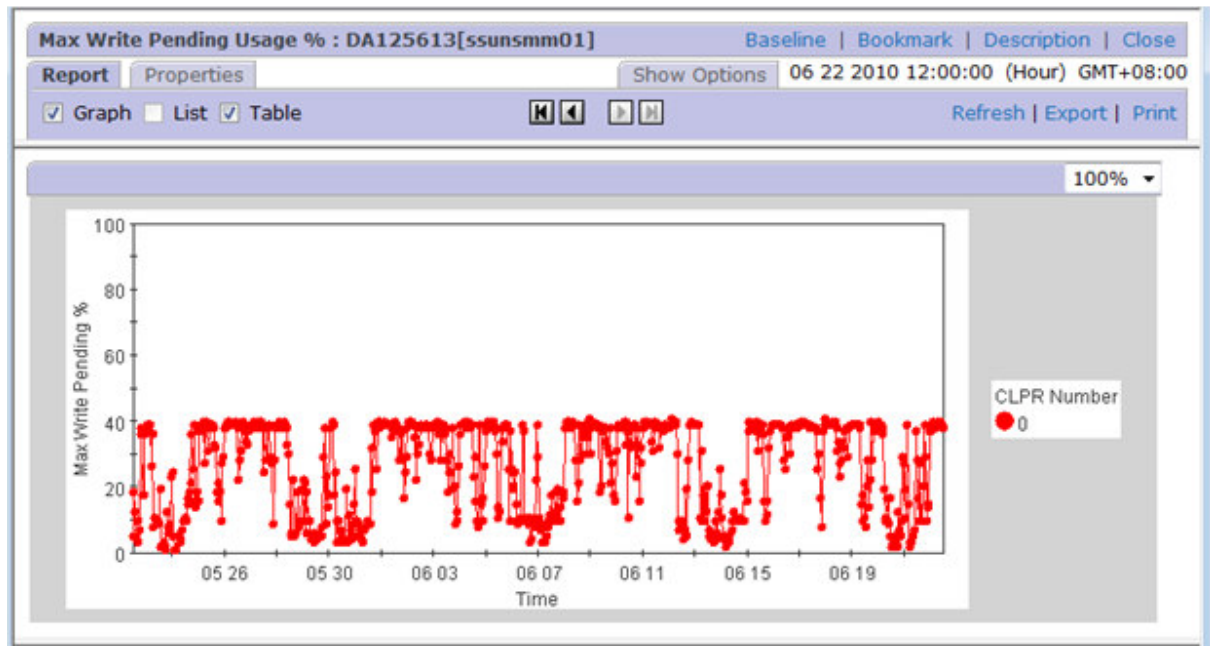
Cache Read Hit %



Comment: The average cache read Hit is 80%. And is healthy

Recommendation: No Action Required

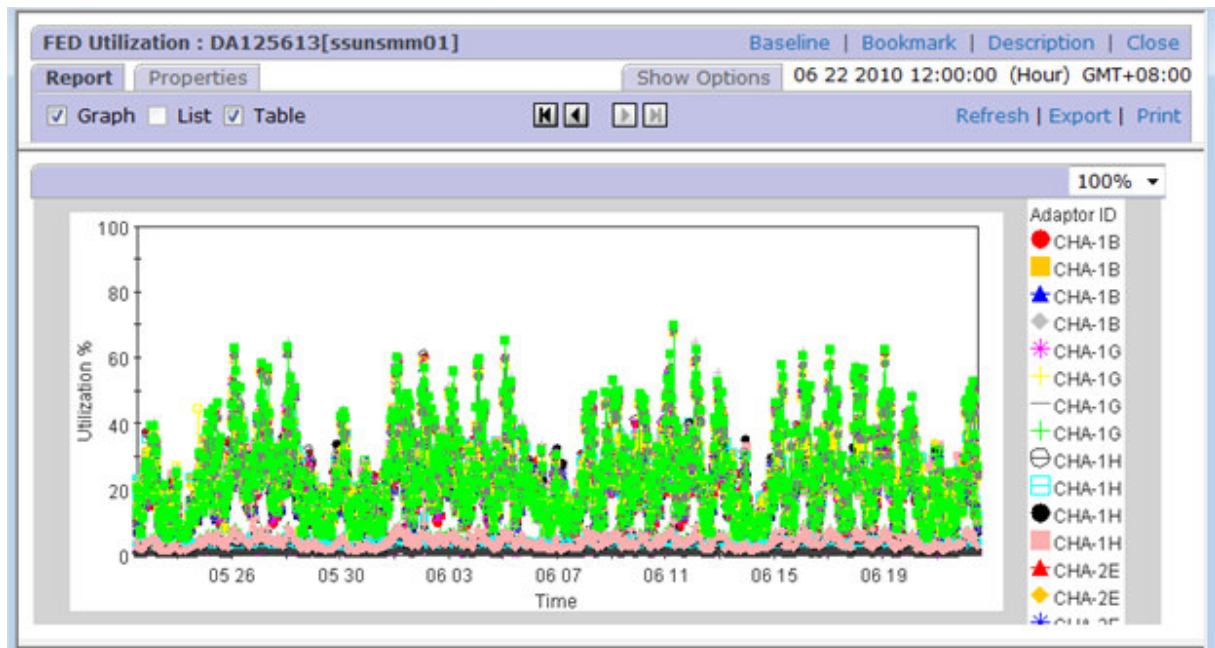
Cache Write Pending %



Comment: The cache write pending is peaked at 40% and healthy

Recommendation: No Action Required

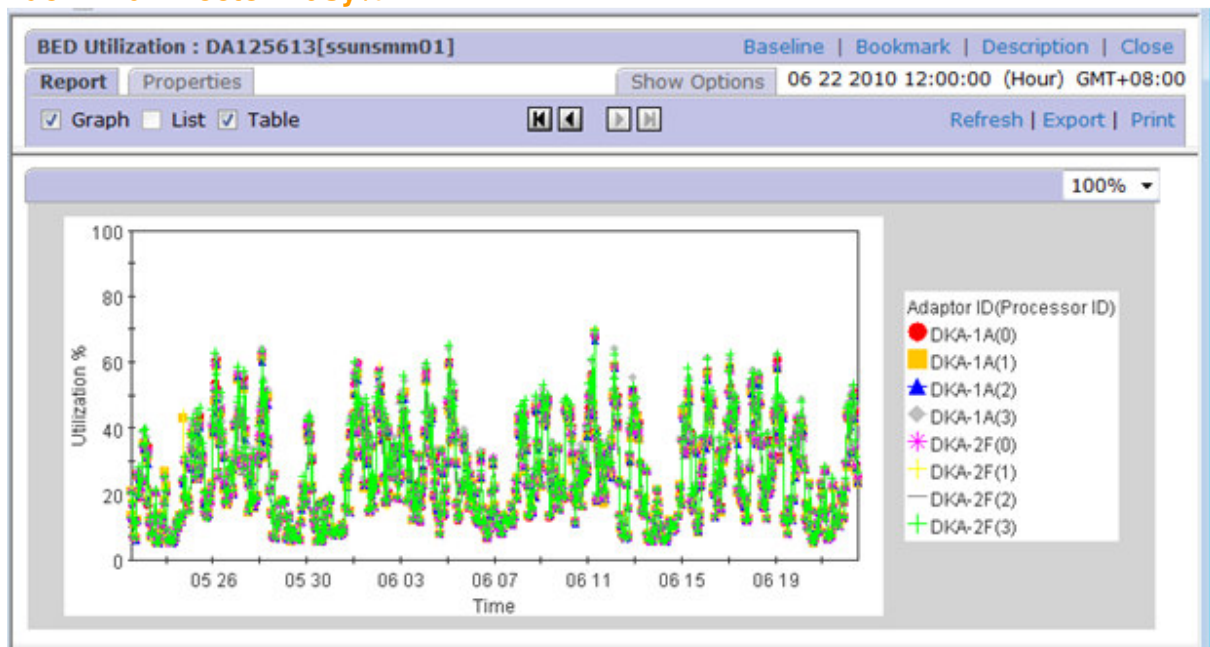
FED Processor Busy %



Comment: The above chart shows FED is healthy

Recommendation: No action required.

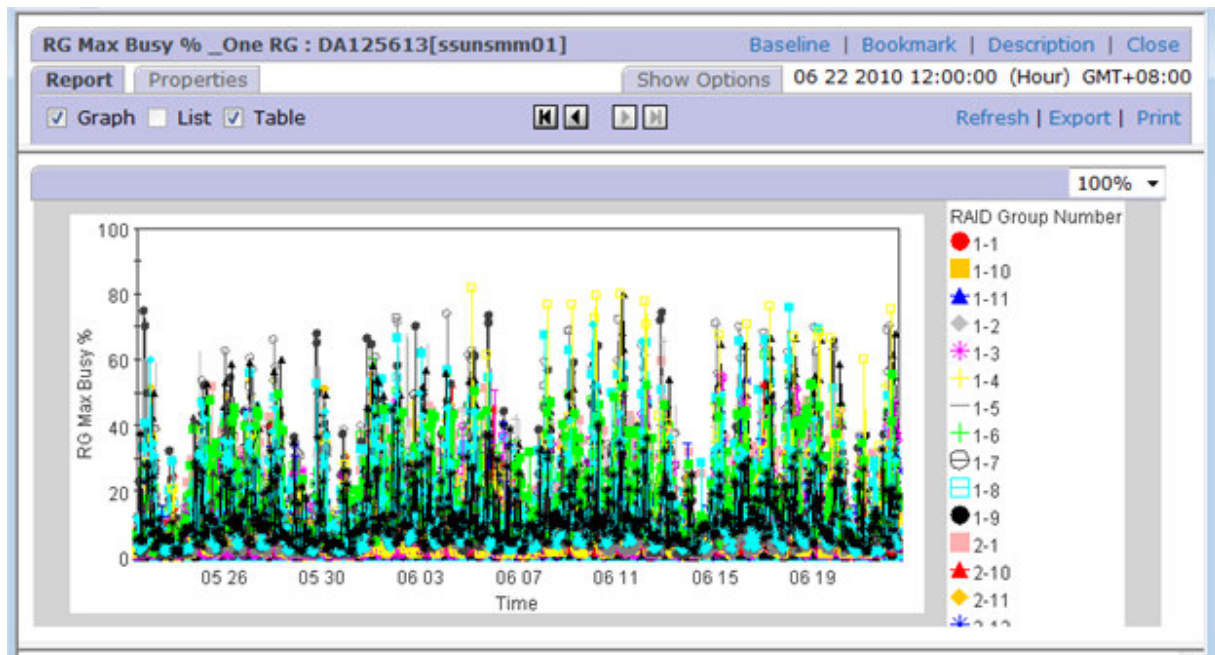
Back End Director Busy%



Comment: No concerns in the above chart. All the BED processors are healthy.

Recommendation: No Action Required

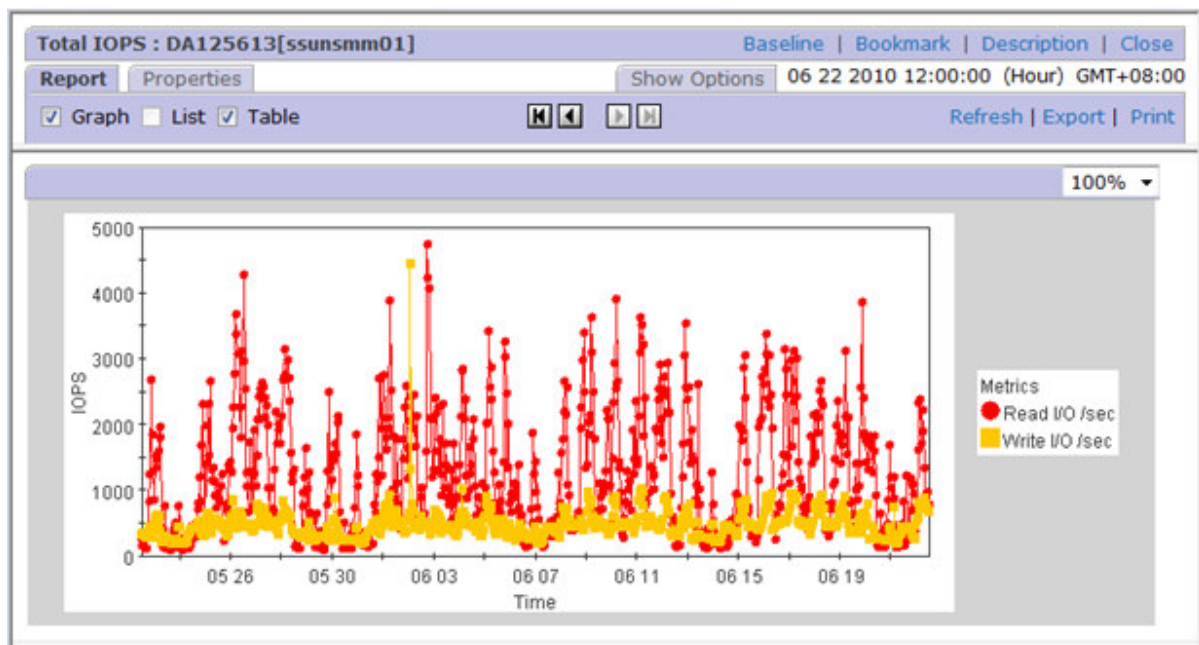
Raid Group Busy%



Comment: No concerns in the above chart. All the Raid Groups are healthy.

Recommendation: No action is required.

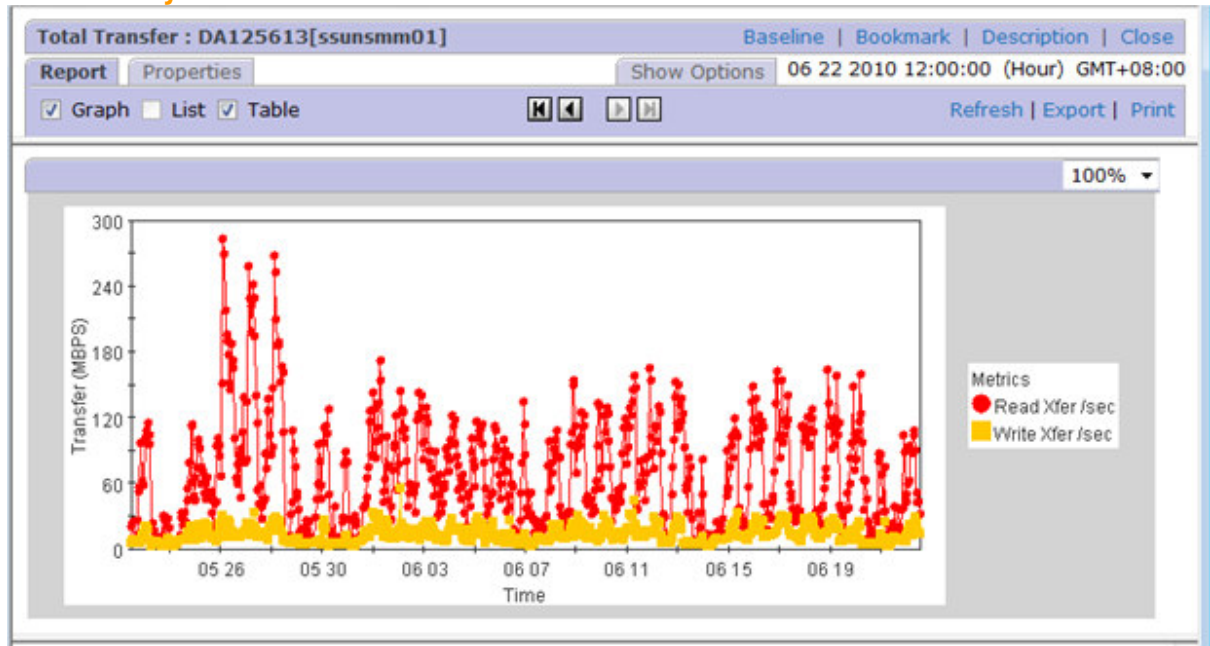
Total Subsystem IOPS



Comment: Total subsystem IOPS is about 8000 IOPS in average with generally more Write I/O than read.

Recommendation: No action is required.

Total Subsystem MBPS

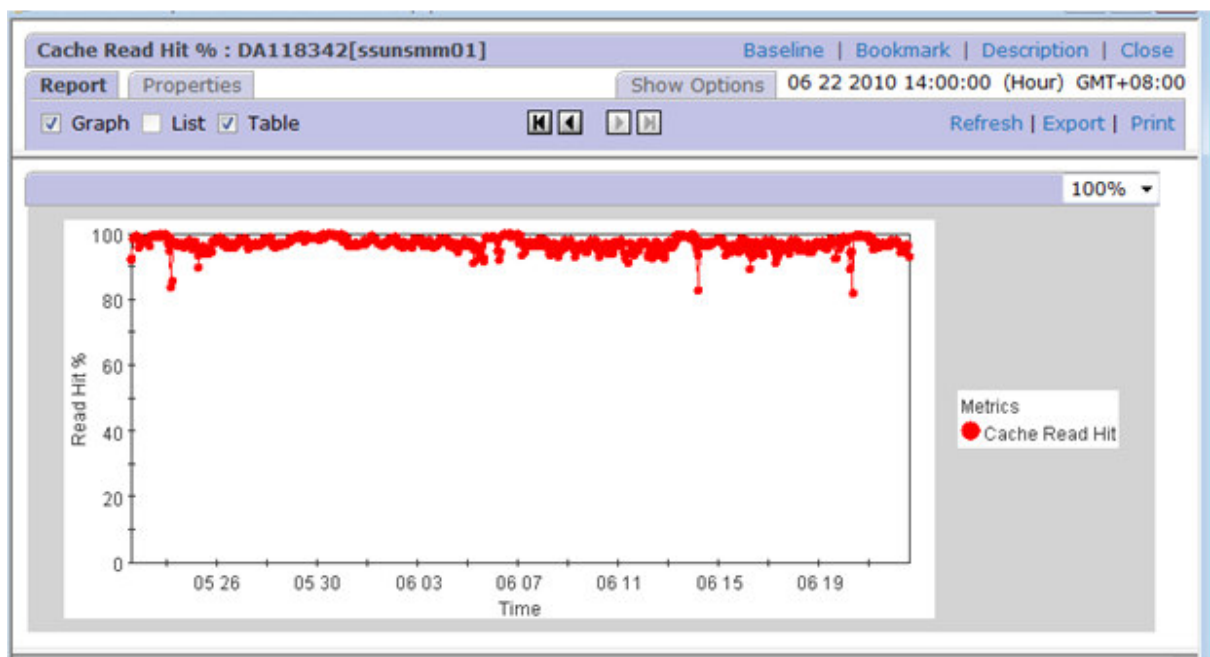


Comment: Total subsystem xfer rate is about 150 MB/s in average with generally more read I/O than write.

Recommendation: No action is required.

2.5 Tuning Manager Report for 18342 (CIT2 PRD with COB)

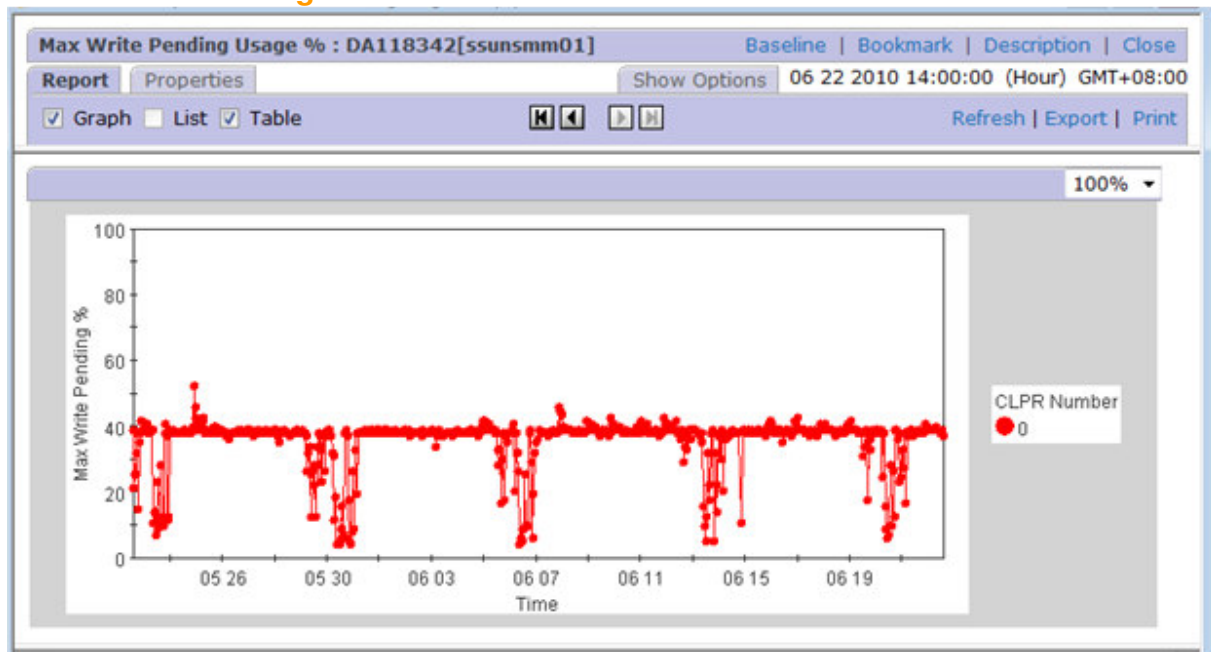
Cache Read Hit %



Comment: The average cache read Hit is 80%. And is healthy

Recommendation: No Action Required

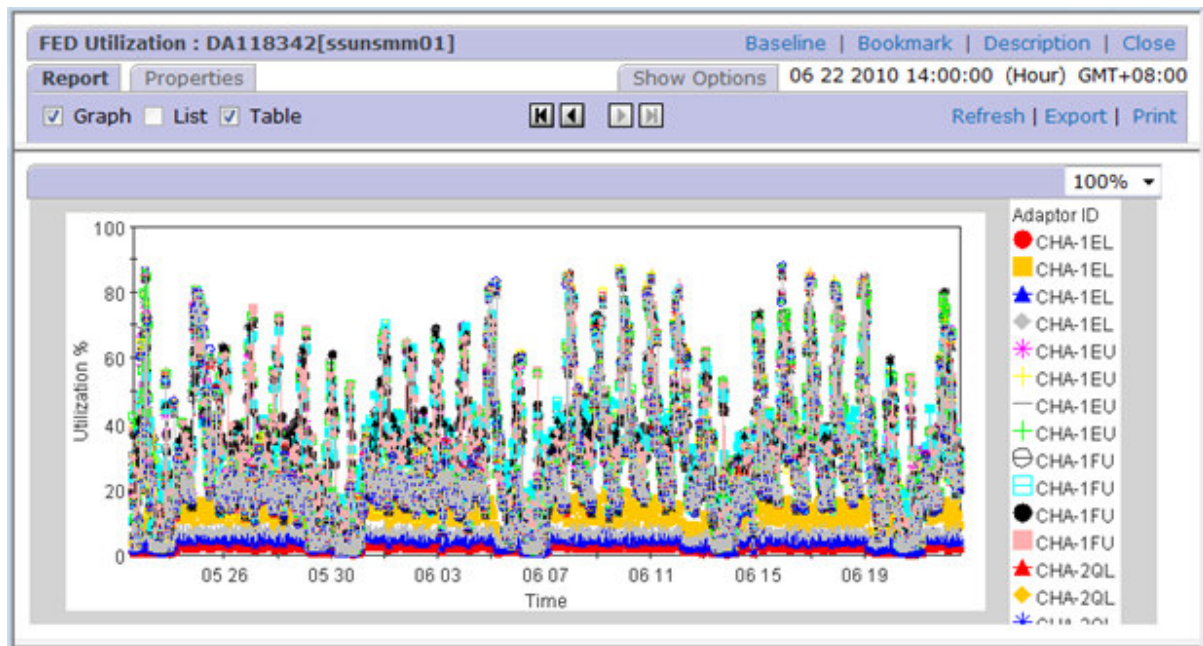
Cache Write Pending %



Comment: The average cache write pending is 40%. And is healthy

Recommendation: No Action Required

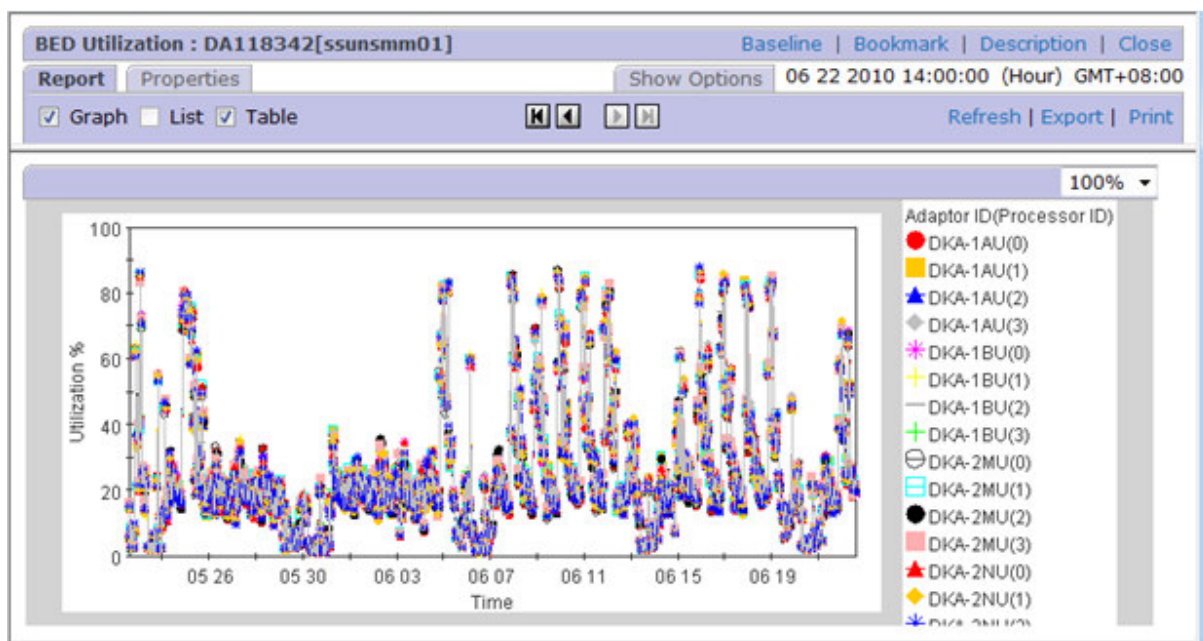
FED Processor Busy %



Comment: The above chart shows FED is high at 80%

Recommendation: Consider adding more FED's

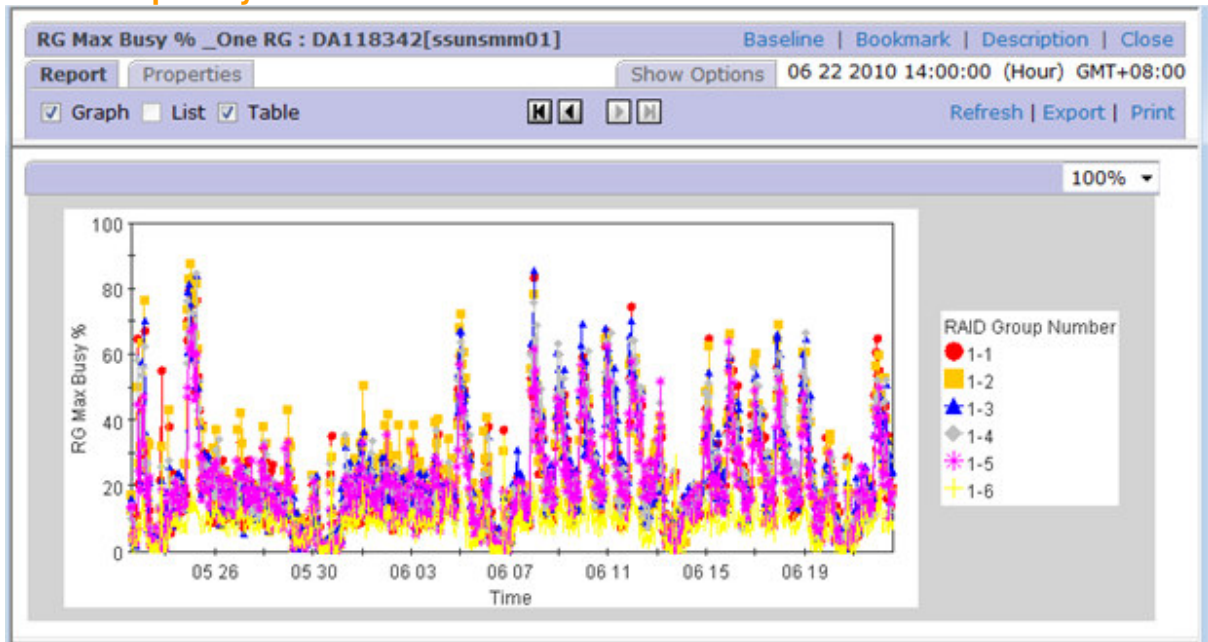
Back End Director Busy%



Comment: No concerns in the above chart. All the BED processors are healthy.

Recommendation: consider adding more BED's

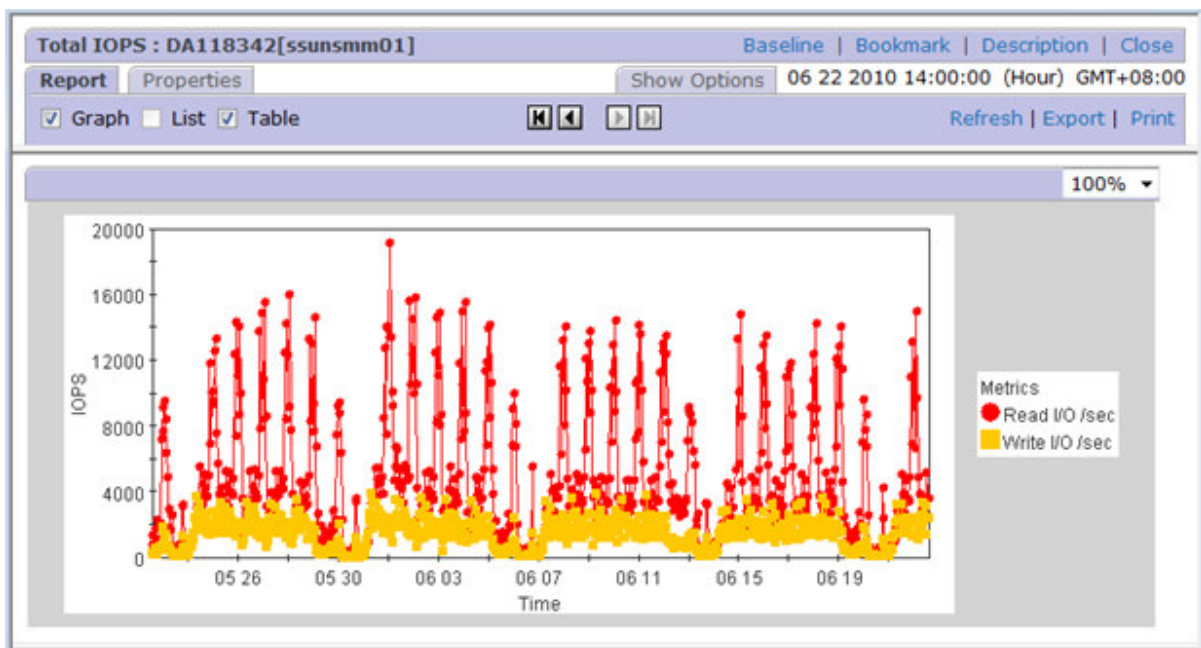
Raid Group Busy%



Comment: No concerns in the above chart. All the Raid Groups are healthy.

Recommendation: No action is required.

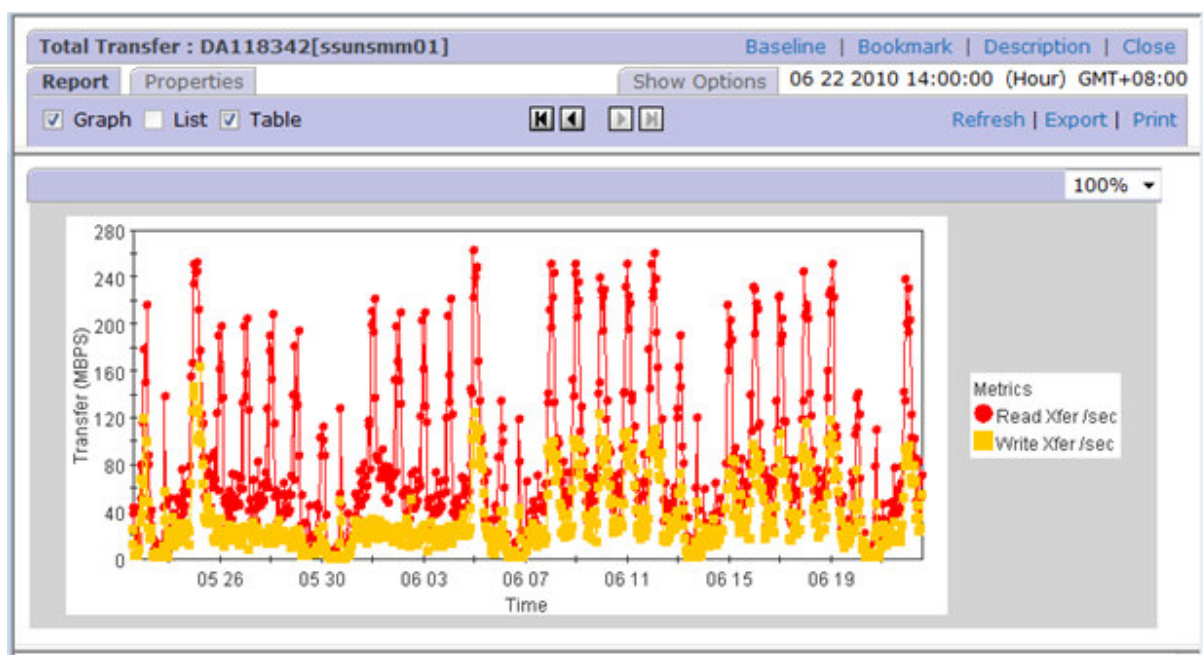
Total Subsystem IOPS



Comment: Total subsystem IOPS is about 10000 IOPS in average with generally more Read IO than write. The subsystem is generally healthy.

Recommendation: No action is required.

Total Subsystem MBPS

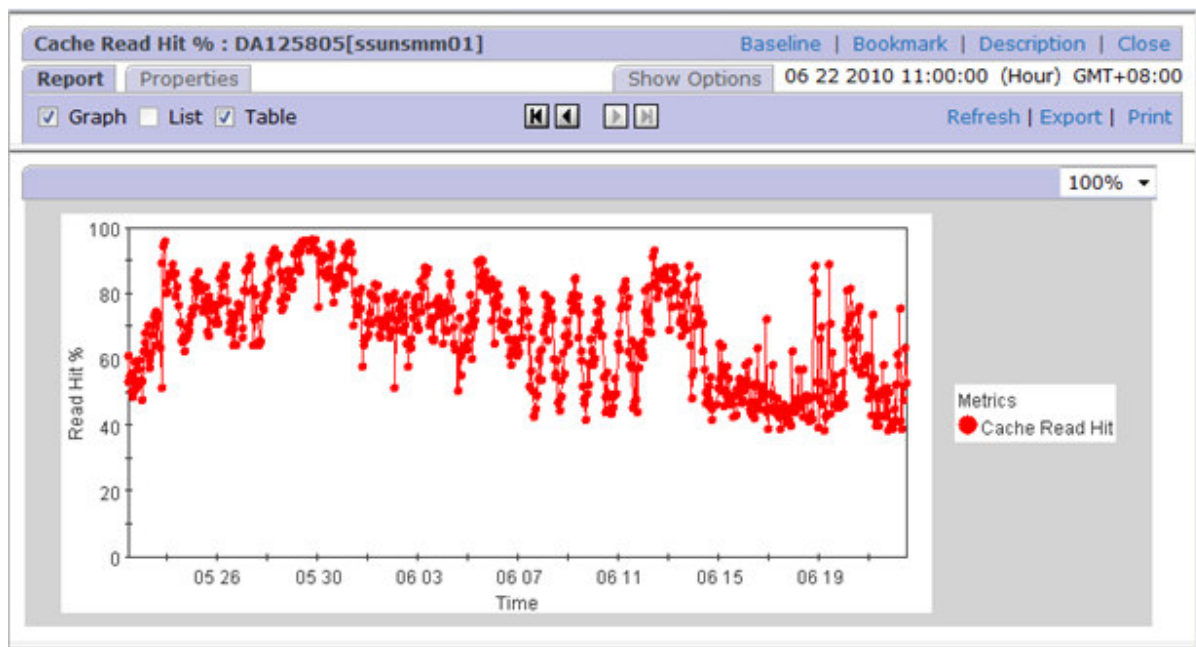


Comment: Total subsystem xfer rate is about 120 MB/s in average with generally more read I/O than write. The subsystem is generally healthy

Recommendation: No action is required.

2.6 Tuning Manager Report for 25805 (RND/UAT)

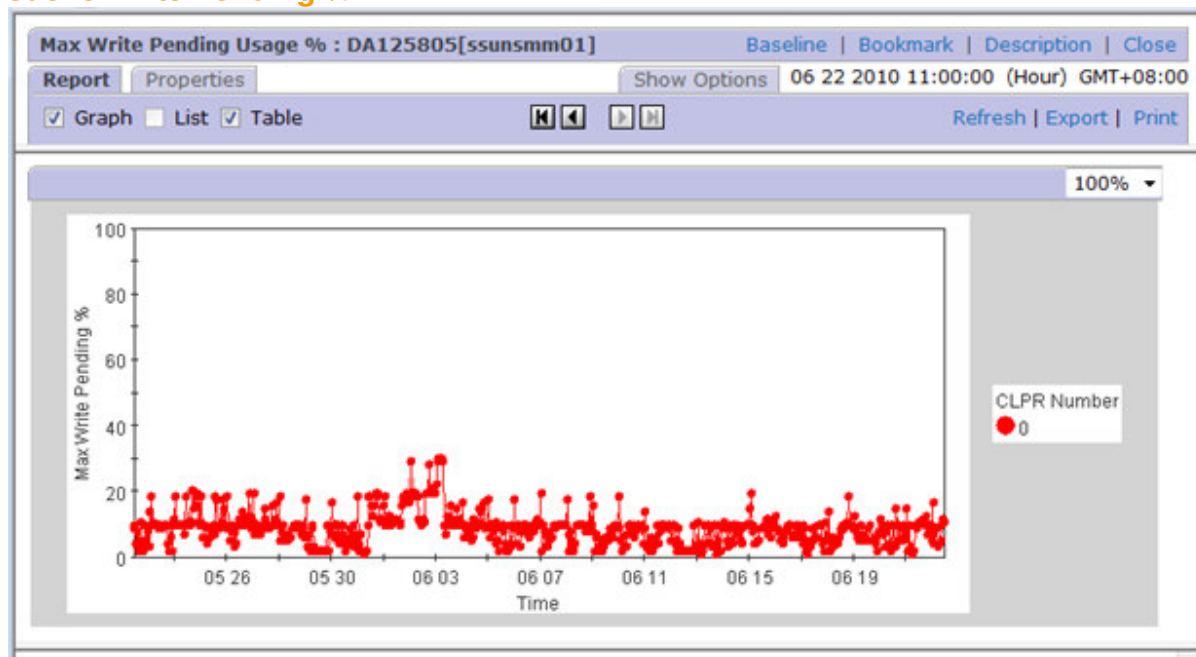
Cache Read Hit %



Comment: The average cache read Hit is 60%. And is healthy. seems workload has more random read IO

Recommendation: No Action Required

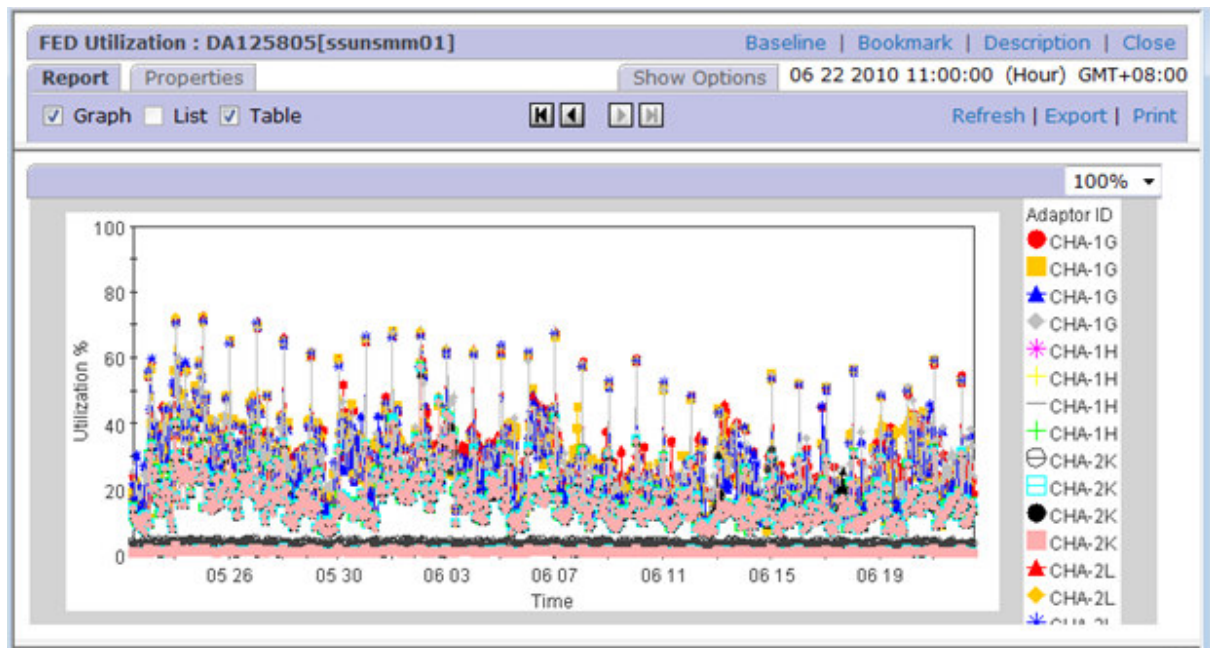
Cache Write Pending %



Comment: The average cache write pending is 20%. And is healthy

Recommendation: No Action Required

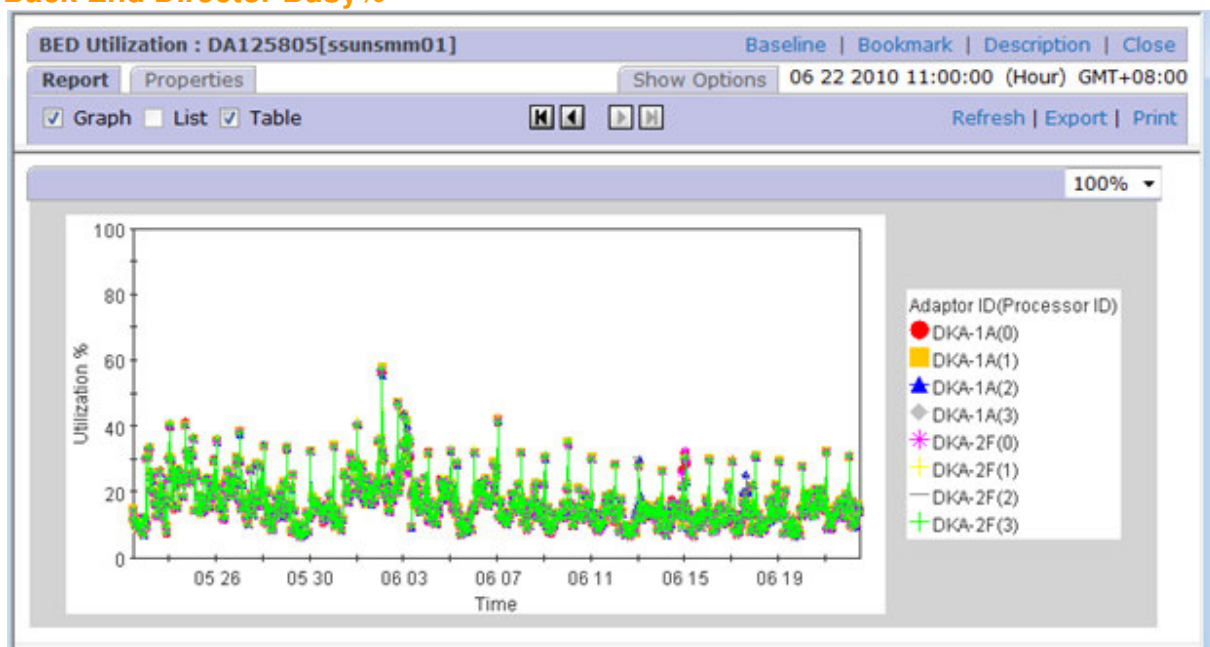
FED Processor Busy %



Comment: The above chart shows FED is healthy.

Recommendation: No Action Required

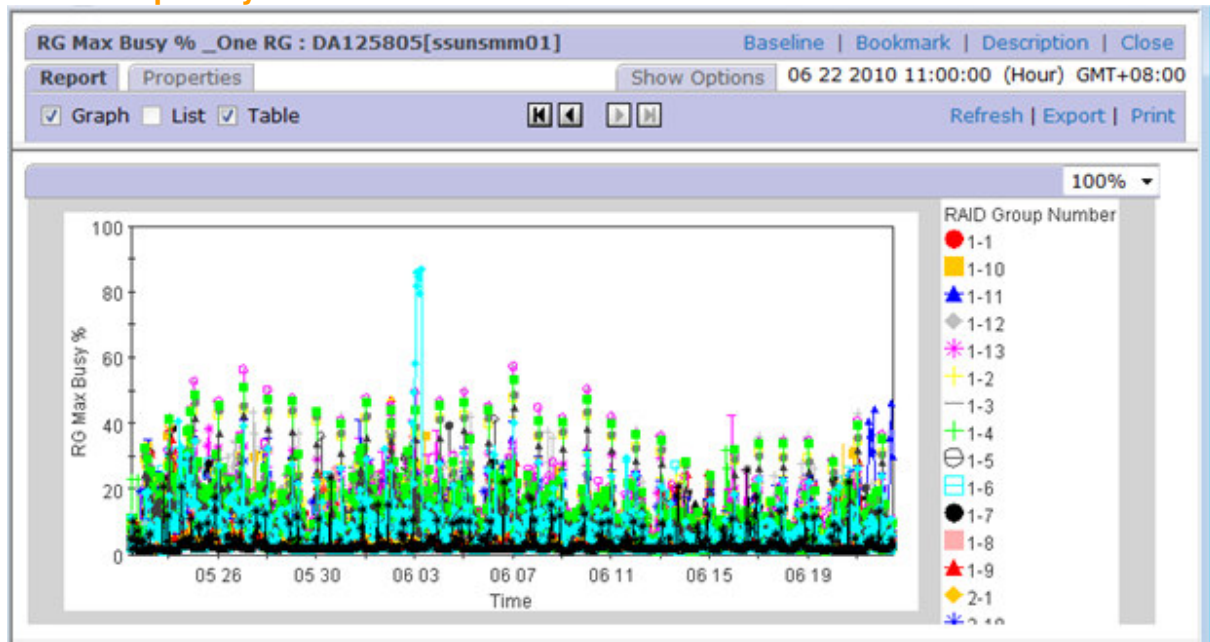
Back End Director Busy%



Comment: No concerns in the above chart. All the BED processors are healthy.

Recommendation: No Action Required

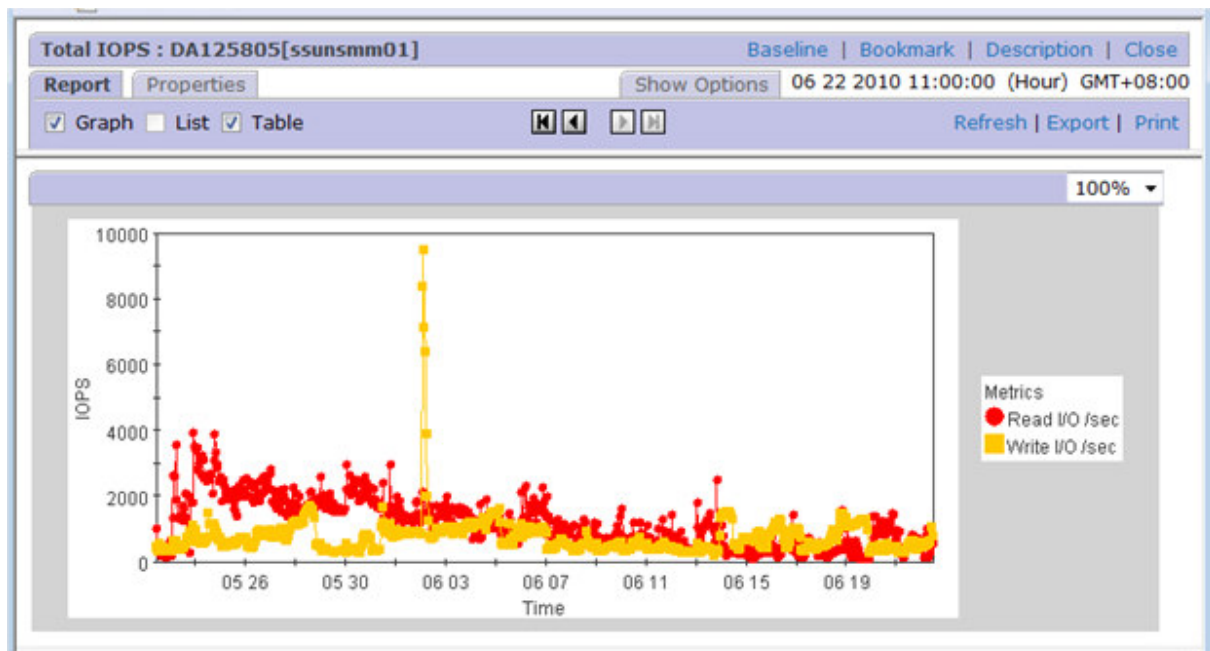
Raid Group Busy%



Comment: No concerns in the above chart. All the Raid Groups are healthy.

Recommendation: No action is required.

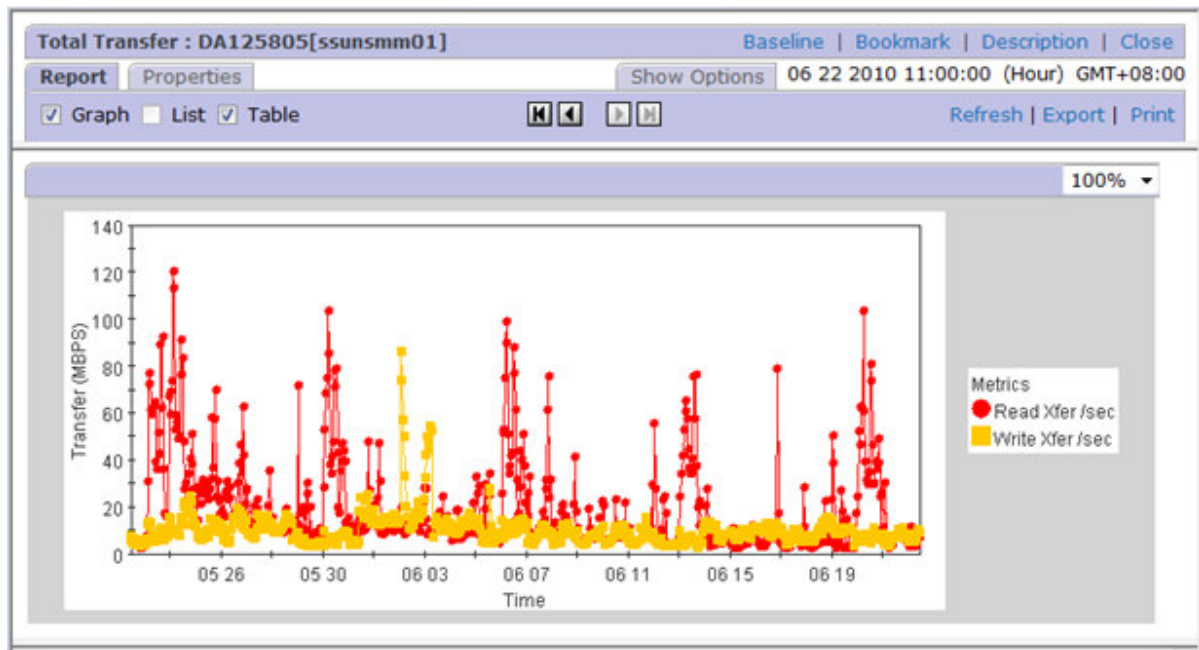
Total Subsystem IOPS



Comment: Total subsystem IOPS is about 2000 IOPS in average with generally more Read IO than write. The subsystem is generally healthy, and there is a sudden increase in the workload in the first week on June.

Recommendation: No action is required.

Total Subsystem MBPS



Comment: Total subsystem xfer rate is about 60 MB/s in average with generally more read I/O than write. The subsystem is generally healthy

Recommendation: No action is required.

END OF REPORT