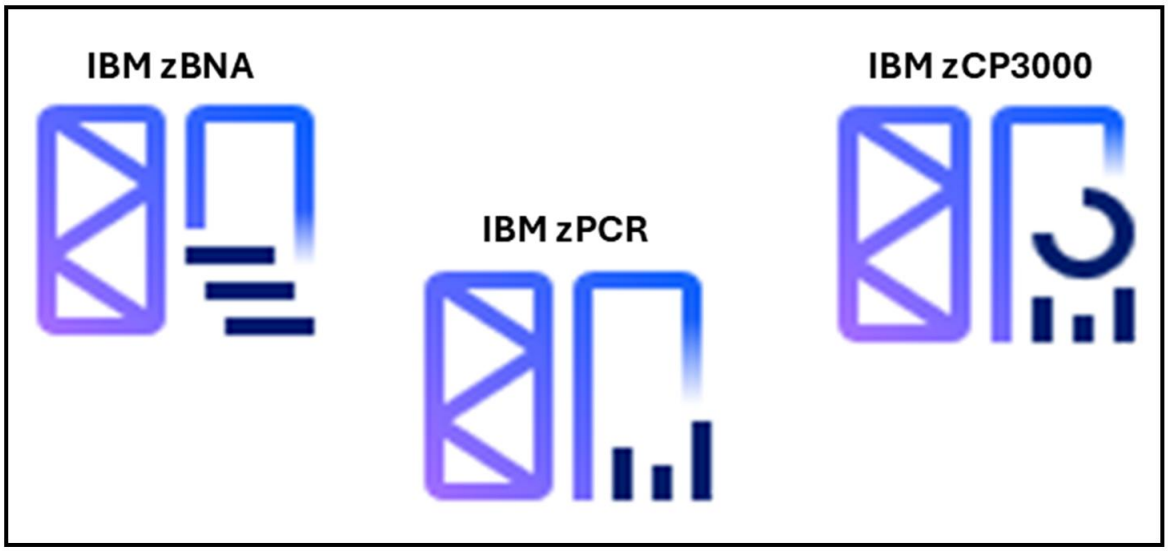
Data Extraction Program
For IBM z Batch Network Analyzer, IBM zCP3000, and IBM z Processor Capacity Reference



Technical Reference

CP3KEXTR v4.40 01/27/2026

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Table of Contents

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You can download this document (Cp3kExtr-TechRef.pdf) and the program package (CP3KEXTR.Zip) from:

https://ibm.biz/Bdmibu

The descriptions of output file formats and EDF vector names have been moved into this document.

Recent Program Versions

4.40	**01-27-26**	Add WENTN, WENTC, and WENTE to the WORK/WRKR section(s) Add FLG2 and FLG3 to the CFS section Various bug fixes
4.39	**10-28-25**	Add CPE_LO, CPE_HI, and IOPCMPR to the SYS section Add SPEED, SHR, FDEFER, HDEFER to the PATH section WPIVAT now produces values for System and Discretionary goals RC16 when SMF70VER is non-zero (non-native z/OS LPAR environment) SMF30 continuation record support (for Encryption and NNPI counters) Various bug fixes
4.38	**06-17-25**	IBM z17 support Support for new z17 AIU metrics In PRINT001 Job Output, fix cases where “INPUT DATA STATISTICS” section may be printed multiple times and SMF record type counts are incorrect Various bug fixes
4.37	**01-07-25**	Fix vector padding for the following: Workload – WTCP, WTSP. WTOSP BCU/DASD – ZHLBR, ZHLRO, ZHLSR, ZHLRT, ZHLBW, ZHLWO, ZHLSW, ZHLWT
4.36	**07-19-24**	Update z16 RNI Scaling Factor Fix to avoid rare case of S0C1 abend
4.35	**05-14-24**	Added SMFTIOE5 Changed exponent indicator to ‘E’ from ‘e’
4.34	**11-21-23**	Replaced NIO field with NIOG and NIOP for GCP & zIIP Added an additional Decimal to MPLV
4.33	**11-06-23**	Add NIO field. Add CPIT1P & CPIT2P Calculation updates for FCPI & SCPL1M & DMDPGV Remove SMF 23 processing
4.32	**10-10-23**	BCLAS added to WRKR section
4.31	**07-20-23**	WLCK added to WORK section
4.30	**04-21-23**	Synchronous I/O fields from 74.8 for BCU section.
4.28	**02-17-23**	Synchronous I/O fields from 74s for BCU and ACT sections Addition of DFSORT fields from the type 16 record. Various bug fixes
4.25	**11-07-22**	Addition of various DFSORT metrics to DATAnnn file. Fix to IOCP processing Various bug fixes
4.24	**8-29-22**	New VRPR section within EDF. This details topology of chip, DCM, Book, Drawer etc of processors.

4.23	**5-30-22**	Reporting on CF system managed async duplexing – See CFS sect FLG1 Enhancement to provide Transaction based CPU usage. Split by CP/GP, iiP and iiP eligible work run on CP/GP. See WORKS sect WTCP, WTSP, WTOCP respectively. Support for z16 specific calculations/vectors Reporting on deflate usage Telum chip offload reporting Ambiguity of LPARCPU – vectors LPARCPUG and LPARCPUP introduced.
4.22	**11-10-21**	Expansion/addition of vectors detailing zIIP and GCP specific measurements Improved precision on vectors to (up to 4 dec places) Re-Add SORTWKnn (jcl statements (commented out //*) Labelling of inactive BCU's to prevent duplicates where NED not available
4.21	**06-07-21**	Fixes for issues with 113 synchronization and invalid data.
4.19	**04-23-21**	Fix for Issues with sample times Fix for incorrect PI values for Percentile Goals in period two and higher Accommodation for CPC serial number greater than 5 characters.
4.18	**03-08-21**	Fix for Issues with sample times Add vectors SLH and TPI for SMF70SLH & SMF70TPI. Message if DURATION greater than 70 or 113 interval. Stop. Message if SYSID moves between LPARs. Stop. Some changes to number of decimals
4.16	**02-19-21**	Add 2 new vectors, FRL9A= & FRL9M= with data from SMF71L9A & L9M Add new 'dat' type 1 field for SMF30HPT Add new vector LPIRDx= indicating setting of SMF70PFG bit 4 Update to 70(2) handling
4.13	**02-12-21**	Fix case where 'dat' file time was incorrect Fix case where LPAR-related vectors would get an extra entry Fix rare 0C4 exception encountered with a 74(8) record
4.10	**12-22-20**	Implement processing of SMF 113 subtype 1 records Discontinue support for SMF 113 subtype 2 records Upgrade the algorithm that assigns SMF records to reporting intervals Add SMF 16 fields: iceMOSIZ and Rat = iceRcOUT / iceRcINP Change LpprPx calculation to ignore SMF70PDT value Remove INSTR vector Remove refs to 78.1 Remove SMF 23 mod & references

1. Introduction

This document contains technical information to be used by developers of applications that read the EDF and 'dat' files produced by the Extract program. For instructions about how to operate the program please refer to the separate "User's Guide".

1.1 SMF Input Record Types

SMF records are expected to be in sequence by DATE and Time. If they are not, use SORT=YES control statement, which is the default in SYSIN001 DD.

While at it, the file can be reduced in size by selecting only the required records. Do this with these input parameters: Date, Time, Select, and Exclude.

Record Types 76, 77, and 79 are currently ignored.

Note: the Extract Program will eliminate duplicate records in the input stream. (Occasionally customer procedures are such that records are duplicated in the SMF input stream). If records are discarded a message will indicate how many have been discarded.

Note: If you have CMF (Boole and Babbage's equivalent of monitor I) data it is successfully processed by Extract Program as well.

The following SMF record types and subtypes are used by the Extract program:

Record Type	Type of Data	Required for	Subtypes Used
14	Input DS Activity	For **zBNA**	
15	Output DS Activity	For **zBNA**	
30	Common Address Space Work (accounting information)	For **zBNA**, and for T30MAP processing or creating the DATA001 dataset	**2** - Activity since previous interval end **3** - Activity for interval before step end **4** - Step totals **5** - Job termination
42	DFSMS Statistics (Data Facility Storage Management Subsystem)	For **zBNA** If TYPE42=YES also for **zCP3000**	**6** - DASD data set level I/O statistics
70	CPU activity record	Required, except for type 30 processing	**1** - CPU, LPAR, coupling facility data **2** - Data for cryptographic coprocessors
71	Paging Activity	Only for system paging statistics.	**1** (has only one subtype)
72	Workload Activity	for PGN=GOAL	**3** – Workload activity data
73	Channel Path Activity	for BCU=AUTO	**1** (has only one subtype)
74	Device Activity	for BCU=AUTO, 74.9 for zBNA	1 - Device activity 4 - Coupling facility 5 - Cache subsystem 8 - Enterprise Disk System 9 - PCI Express 10 - Extended asych data mover, EADM
75	Page Data Set Activity	For auxiliary storage information	1 (has only one subtype)
78	I/O Queuing Activity	for BCU=AUTO	**2** – Virtual storage **3** – I/O queuing & HiperPAV
113	Hardware capacity, reporting & statistics	all tools	Contains hardware capacity, reporting, and statistics for IBM System z10 or later machines. **1** – Hardware data event counters

2. "DAT" Output File

The Extract Program can create the DATA001 file containing selected fields from SMF record types **30**, **42**, **14/15, 120(12), and 16**. This is a flat text file used by the **zBNA** program.

When these record types are encountered in the SMF input the program checks for a DATA001 DD statement. If present the SMF fields are extracted and written to this file. Some of the same data may also be included in the EDF file.

The first character of each record is a number that indicates the data type code. When the number is immediately followed by an asterisk (*) it indicates that the line contains information about the layout of that type of data (making the file format self-defining).

code	SMF type	contains	format
0	**info**	Extract run identification data: SMF dataset name, RunDate, RunTime, Extract Version	variable with key names
1	**30**	Accounting information	fixed
2	**42**	DFSMS (Data Facility Storage Management Subsystem) statistics and configuration	fixed
3	**14/15**	Dataset activity – Input (14) & Output (15)	fixed
4	**120 (12)**	Java Batch information	variable
5	**16**	DFSort Statistics	variable

Each line for a self-defining field entry includes the following fields, separated by commas:

code	The record type code (1,2, or 3). Always position 1.
*****	Constant – marker for self-defining entry. Always position 2.
NAME=	The name of the field
N or C	Whether the output is numeric or character. (Note the output in the file will always be in character format.)
COLS=	The column in the output in which this field will start
COLE=	The column in the output in which this field will end.

Here is an example of the self-defining record data:

```
1*NAME=SMF30DTE,N,COLS=1,COLE=6
1*NAME=SMF30TME,N,COLS=7,COLE=12
1*NAME=SMF30STP,C,COLS=13,COLE=13
```

By default, only type 30 subtype 4 records (step totals) and subtype 5 records (job totals) are processed. However, by using an additional parameter, "SUB30=2,3,4,5" you may specify which other subtypes are to be included.

For example, SUB30=2,3 indicates that you want just subtypes 2 and 3 and will exclude subtypes 4 and 5 (i.e., specifying the SUB30 parameter overrides the default subtype 4,5). The subtype of the record is included in the output so the post processing program can know the source.

Fixed Format below indicates that if the value will fit in 10-character positions, then it will be so displayed. If it is two characters too big, then three low order digits will be dropped, and the final character will be K. If it is 5 characters too bug, then six low order digits will be dropped, and the final character will be M. If it is larger than that then only an X will appear in the field to indicate an overflow.

2.1 Dat File – Type 30 Records (line code 1)

Field Name	*SMF Field*	*Contains*	*Type*
SMF30DTE	SMF30DTE	Date of record creation	
SMF30TME	SMF30TME	Time of record creation	
SMF30STP	SMF30STP	Record subtype	
SMF30JBN	SMF30JBN	Job Name	
SMF30PSN	SMF70PSN	Step invoking procedure	
SMF30STM	SMF70STN	Step Name	
SMF30PGM	SMF30PGM	Program name	
SMF30WLM	SMF30WLM	Workload Name	
SMF30SCN	SMF30SCN	Service Class	
SMF30RUD	SMF30RUD	RACF Userid	
SMF30TCN	SMF30TCN	Connect Time	Units unchanged
SMF30ABD	SMF30ABD	Completion type	A = Abend N = Normal
SMF30PTY	SMF30PTY	Dispatching priority	Not valid in goal mode
CPUTIME	SMF30 ICU, ISB, IIP, RCT, HPT, CPT, CPS	CPU Time	0.01 sec
SMF30TEP	SMF30TEP	Blocks Transferred	
SMF30PGI	SMF30PGI	Pages paged in	
SMF30NSW	SMF30NSW	Swap Sequences	
SMF30HPI	SMF30HPI	Hiperspace page ins	
CS	SMF30 ARB, EAR, URB, EUR	Central Storage	Kilobytes

SMF30TAT	SMF30TAT	Transaction Active Time	0.01 sec
SMF30RES	SMF30RES	Transaction Residency Time	0.01 sec
SMF30PGN	SMF30PGN	Compatibility Mode Performance Group	
SMF30TRS	SMF30TRS	Number of transactions	
SMF30CLS	SMF30CLS	Job Class	
SMF30GRP	SMF30GRP	RACF Group	
SMF30SQT	SMF30SQT	Waiting for Initiator	0.01 sec
SMF30WID	SMF30WID	Subsystem identifier	
SMF30SRV	SMF30SRV	Total Service Units	Units
SMF30IO	SMF30IO	I/O Service Units	Units
SMF30CSU	SMF30CSU (4-byte) or SMF30CSU_L (8-byte)	CPU Service Units	Fixed Format (K,M, X)
SMF30SRB	SMF30SRB	SRB Service Units	Units
SMF30SCC	SMF30SCC	Completion code	Hex
SMF30STD	SMF30STD	Initiator select date	YYMMDD
SMF30SIT	SMF30SID	Initiator select time	HHMMSShh
SMF30SID	SMF30SID	JES SysId	
SMF30_TIME_ ON_ZIIP	SMF30_TIME_ON_ZIIP	zIIP Time	0.01 sec
SMF30_TIME_ ON_ZAAP	SMF30_TIME_ON_ZAAP	zAAP Time	0.01 sec
SMF30ZNF	SMF30ZNF	zAAP Normalization Factor	
SMF30SNF	SMF30SNF	zIIP Normalization Factor	
SMF30CPT	SMF30CPT	CPU Step Time	0.01 sec
SMF30JNM	SMF30JNM	JES Job Identifier	
SMF30STN	SMF30STN	Step Number	
SMF30_Highest_ Task_CPU_Percent	SMF30_Highest_ Task_CPU_Percent	Highest Task Percent	
SMF30_Highest_ Task_CPU_Program	SMF30_Highest_ Task_CPU_Program	Highest Task Program Name	

SMF30RCN	SMF30RCN	Reporting Class	
SMF30RSD	SMF30RSD	Reader Date	YYMMDD
SMF30RST	SMF30RST	Reader Time	HHMMSShh
WAITINIT	SMF30SIT minus SMF30RST	Initiator Wait seconds	seconds
SMF30ICU	SMF30ICU	Initiator time under TCB	
SMF30RQT	SMF30RQT	Job Prep ineligible time	0.01 sec
SMF30HQT	SMF30HQT	Job Prep ineligible time, other	0.01 sec
SMF30MEM	SMF30MEM	MEMLIMIT value in 1MB units	Fixed Format (K, M, X)
SMF30MES	SMF30MES	Source of Memlimit	
SMF30HPT	SMF30HPT	Step CPU Time for Hiperspace Transfer	0.01 sec
SMF30ACL	SMF30ACL	Accounting section Length	**SMF30ACL**
SMF30ACT	SMF30ACT	Accounting Data	**SMF30ACT**

2.2 Dat File – Type 42 Records (line code 2)

Field Name	*SMF Field*	*Contains*	*Size*	*Type*
SMF42DTE	SMF42DTE	Date of record creation	6	YYMMDD
SMF42TME	SMF42TME	Time of record creation	8	HHMMSShh
DURATION	SMF42PTE - SMF42PTS	Interval Duration	10	numeric
S42JDJNM	S42JDJNM	Job name	8	alpha
S42JDWLM	S42JDWLM	Workload class	8	alpha
S42JDWSC	S42JDWSC	Service class	8	alpha
S42DSVOL	S42DSVOL	Volume serial number	6	alpha
S42DSN	S42DSN	Data set name	44	alpha
S42DSION	S42DSION	Total number of I/Os	10	
S42DSIOR	S42DSIOR	Average response time	10	0.1 msec

S42DSIOC	S42DSIOC	Average I/O connect time	10	0.1 msec
S42DSIOP	S42DSIOP	Average I/O pending time	10	0.1 msec
S42DSIOD	S42DSIOD	Average I/O disconnect time	10	0.1 msec
S42DSIOQ	S42DSIOQ	Average control unit queue time	10	0.1 msec
S42DSBSZ	S42DSBSZ	Block size	10	numeric
S42BLKRD	S42AMSRB + S42AMDRB	Total blocks read, sequential & direct	10	numeric
S42BLKWR	S42AMSWB + S42AMDWB	Total blocks written, sequential & direct	10	numeric
S42DSEF	S42DSEF	Extended format flag	1	= 0 or 1
S42DSEFC	S42DSEFC	Compressed format flag	1	= 0 or 1
S42DSTYP	S42DSTYP	Data set type	3	= 0 - 22

(continued)

42 Data File (continued)

Field Name	*SMF Field*	*Contains*	*Size*	*Type*
S42JDRSD	S42JDRSD	Date reader recognized the JOB card for this job	6	YYMMDD
S42JDRST	S42JDRST	Time reader recognized the JOB card for this job	8	HHMMSShh
S42DSIOSE	S42DSIOS	Flag to indicate S42DSIOS field is present	1	= 0 or 1
S42DSIOS	S42DSIOS	Total number read/write ops to Metro Mirror secondary	10	numeric
S42FICON	S42DSHRD S42DSHWR	Flag to indicate that either of these FICON fields are nonzero	1	= 0 or 1
S42DSENC	S42DSFL1	Set to 1 when S42DSFL1 x'20' bit is on indicating an Encrypted DASD data set	1	= 0 or 1
S42DSENT	S42DSENT	Encryption type: AES-256	5	numeric
S42DSCMT	S42DSCMT	Data Set Compression type	3	numeric
S42AMRIB	S42AMRIB	Number of bytes read	10	numeric
S42AMWIB	S42AMWIB	Number of bytes written	10	numeric

S42AMRBD	S42AMRBD	For encrypted data sets, number of bytes decrypted when reading. For non-encrypted data sets, number of bytes that would be eligible for decryption when reading if the data set was allocated as encrypted	10	numeric
S42AMWBE	S42AMWBE	For encrypted data sets, nbr of bytes encrypted when writing For non-encrypted data sets, nbr of bytes that would be eligible for encryption when writing if the data set was allocated as encrypted.	10	numeric
S42AMRCI	S42AMRCI	Number of VSAM CIs read. For non-VSAM, this is the number of physical blocks	10	numeric
S42AMWCI	S42AMWCI	Number of VSAM CIs written. For non-VSAM, this is the number of physical blocks.	10	numeric

(continued)

42 Data File (continued)

Field Name	*SMF Field*	*Contains*	*Size*	*Type*
S42DSRDT	S42DSRDT	Total number of read operations	10	numeric
S42SNERD	S42SNERD	Number of read requests eligible for synchronous I/O	10	numeric
S42SNERH	S42SNERH	Number of read hits eligible for synchronous I/O	10	numeric
S42SNEWR	S42SNEWR	Number of write requests eligible for synchronous I/O	10	numeric
S42SNRDT	S42SNRDT	Number of synchronous I/O read attempts	10	numeric
S42SNROS	S42SNROS	Number of synchronous I/O read successes	10	numeric
S42SNWTT	S42SNWTT	Number of synchronous I/O write attempts	10	numeric
S42SNWOS	S42SNWOS	Number of synchronous I/O write successes	10	numeric
S42DSA1U	S42DSA1U	Average I/O device-active-only time 1us	10	numeric, usec
S42DST1U	S42DST1U	Average read disconnect time	10	numeric, usec
S42DSB1U	S42DSB1U	Average device busy time	10	numeric, usec
S42DSM1U	S42DSM1U	Average initial command response time	10	numeric, usec
S42DSHRD	S42DSHRD	zHPF Read count	10	numeric
S42DSHWR	S42DSHWR	zHPF Write count	10	numeric
S42DSRRU	S42DSRRU	Average random read cache hit response time	10	numeric
S42DSRSU	S42DSRSU	Average random read cache hit service time	10	numeric
S42SNRDU	S42SNRDU	Average sync_io Read Time in 1us	10	numeric, usec
S42SNWTU	S42SNWTU	Average sync_io Write Time in 1us	10	numeric, usec
S42DSSC	S42DSSC	Storage class name	8	alpha
S42DSFL1	S42DSFL1	Indicates S42DSEXC x'10' bit is set (Open for EXCP processing)	1	Numeric 1 or 0

2.3 Dat File – Type 14 & 15 Records (line code 3)

Field Name	*SMF Field*	*Contains*	*Size*	*Type*
SMF14DTE	SMF14DTE	Date of record creation	6	YYMMDD
SMF14TME	SMF14TME	Time of record creation	8	HHMMSShh
SMF14RTY	SMF14RTY	Record type	2	= 14 or 15
SMF14JBN	SMF14JBN	Job name	8	alpha
SMF14RSD	SMF14RSD	Date reader recognized the JOB card for this job	6	cyyddd
SMF14RST	SMF14RST	Time reader recognized the JOB card for this job	8	HHMMSShh
SMF14DSN	JFCBDSNM from SMFJFCB1	Dataset Name	44	alpha
SMF14DSG	JFCDSRG1 from SMFJFCB1	DSORG	2	hex
SMF14RCF	JFCRECFM from SMFJFCB1	Record format	2	hex
SMF14LRE	JFCLRECL from SMFJFCB1	Logical record length	8	numeric
SMF14BLK	JFCBLKSI from SMFJFCB1	Block size	10	numeric
SMF14DCL	SMF14DCN	Data class name	8	alpha
SMF14STP	SMF14STP	Step name	8	alpha
SMF14CMP	SMF14STY = 1	'Y' if compression segment	1	alpha
SMF14DSV	SMF14DSVER	Data set version	1	numeric
SMF14XF1	SMF14XF1	Compression indicator flags	2	hex
SMF14RIN	SMF14RIN	Record and DS indicator	4	hex
SMFDCBMF	SMFDCBMF	Type of I/O macro instruction and options. Mapped by DCBMACRF in the DCB mapping	4	hex

14 & 15 Data File (continued)

Field Name	*SMF Field*	*Contains*	*Size*	*Type*
SMF14CDL	SMF14CDL	Number of bytes of compressed data read or written	8	numeric
SMF14UDL	SMF14UDL	Data length prior to compression	8	numeric
SMF14CDS	SMF14CDS	Number of compressed user data bytes	8	numeric
SMF14UDS	SMF14UDS	Size of compressed format data set (number of uncompressed user data bytes)	8	numeric
SMF14CIS	SMF14CIS	Physical block size of extended format data set	8	numeric
SMFEXCP	SMFEXCP	Step EXCP count -- sum of SMFEXCP for all UCBs	8	numeric
SMF14EXT	SMF14NEX	Number of extents -- sum of SMF14NEX for all UCBs	8	numeric
SMF14EDI	SMF14EDI	Enhanced Data Integrity (EDI) flag indicator	2	hex
SMF14CMPTYPE	SMF14CMPTYPE	Compression type indicators	2	hex
SMF14NTU	SMF14NTU	Nbr of Tracks used	8	numeric
SMFTIOE5	SMFTIOE5	Data definition name (DDname)	8	alpha

2.4 Dat File – Type 120 Records, Java Batch (line code 4)

The fields in the output record are variable in size, delimited by a comma, and include these data types:

C	**Character data** -- The contents of the target field are moved to the output stream. Any imbedded control characters are converted to blanks and trailing spaces and trailing control characters are removed.
N	**Numeric data** -- The target field is converted to numeric digits in the output stream with all leading zeros are removed. A leading minus sign is included if the value is negative.
H	**Hex format** -- The target field is taken as one byte of binary data and is formatted into the output stream as 0, 1, or 2 hex digits (i.e., leading zeros are suppressed).

SMF 120 - Record Header

Field Name	*SMF Field*	*Ty*	*Contains*	*Format*
4*		N	line code '4'	
Date	SMFDTE	N	Date record moved to SMF buf	mmddyy
Time	SMFTME	N	Time record moved to SMF buf, in seconds	hhmmss

SMF 120 - Subsystem Section

Field Name	*SMF Field*	*Ty*	*Contains*
<1>		C	Marker (for debugging & alignment)
RecType	SM120CBE	N	Record Type
SystemName	SM120CBF	C	System Name
SysplexName	SM120CBG	C	Sysplex Name
JobID	SM120CBJ	C	Server jobid
JobName	SM120CBK	C	Server jobname
Stoken	SM120CBL	H	Server Stoken
ASID	SM120CBM	N	Server ASID
ConfigDir	SM120CBN	C	Server Configuration Directory
CPUA	SM120CDU	N	Physical CPU Adjustment
ADJC	SM120CDV	N	RCPU Rate Adjustment

SMF 120 - Identification Section

Field Name	*SMF Field*	*Ty*	*Contains*
<2>		C	Marker (for debugging & alignment)
InstID	SM120CBQ	N	Job Instance ID
ExecID	SM120CBR	N	Job Execution ID
ExecNbr	SM120CBS	N	Job Execution Number
StepExNbr	SM120CBT	N	Step Execution ID

PartNbr	SM120CBU	N	Partition Number
JobName	SM120CBV	C	Job Name
StepName	SM120CBY	C	step name
SplitName	SM120CBZ	C	Split Name
FlowName	SM120CCA	C	Flow Name
CreateTime	SM120CCB	N	Create Time
StartTime	SM120CCC	N	Start Time
EndTime	SM120CCD	N	End Time
TCB	SM120CCI	H	Dispatch TCB TTOKEN (low 3 bytes)

SMF 120 - Completion Section

Field Name	***SMF Field***	***Ty***	***Contains***
<3>		C	Marker (for debugging & alignment)
BatchStat	SM120CCK	C	Batch Status (ASCII translated to EBCDIC)
ExitStat	SM120CCL	N	Exit Status
PartPlan	SM120CCN	N	Partition Plan
PartCnt	SM120CCO	N	Partition Count
ReadCnt	SM120CCP	N	Read Count
WriteCnt	SM120CCQ	N	Write Count
CommitCnt	SM120CCR	N	Commit Count
RollBackCnt	SM120CCS	N	Rollback Count
ReadSkipCnt	SM120CCT	N	Read Skip Count
ProcessSkipCnt	SM120CCU	N	Process Skip Count
FilterCnt	SM120CCV	N	Filter Count
WriteSkipCnt	SM120CCW	N	Write Skip Count

SMF 120 - Processor Section

Field Name	*SMF Field*	*Ty*	*Contains*
<4>		C	Marker (for debugging & alignment)
TotalCPU	SM120CCZ - SM120CCY	N	Total CPU
TimeOnCP	SM120CDB - SM120CDA	N	Time on CPU
OffloadCPU	SM120CDD - SM120CDC	N	Offload CPU
OffloadOnCP	SM120CDF - SM120CDE	N	Offload on CPU

2.5 Dat File – Type 16 Records, DFSort (line code 5)

The fields in the output record are variable in size, delimited by a comma, and include these data types:

C	**Character data** -- The contents of the target field are moved to the output stream. Any imbedded control characters are converted to blanks and trailing spaces and trailing control characters are removed.
N	**Numeric data** -- The target field is converted to numeric digits in the output stream with all leading zeros are removed. Includes a minus sign if the value is negative.
H	**Hex format** -- The target field is taken as one byte of binary data and is formatted into the output stream as 0, 1, or 2 hex digits (i.e., leading zeros are suppressed).
F	**Fraction** -- A numeric value with an optional decimal point and up to 2 decimal digits. Leading zeros are suppressed as well as trailing zero fractional digits. An even whole number will omit the decimal point and fractional digits. A zero value will be output as a null field.

SMF 16 - DFSORT Record

Field Name	*SMF Field*	*Ty*	*Contains*	*Format*
5*			Line code '5' indicator	
DateMv	iceBDATE	N	Date record moved to SMF buf	mmddyy
TimeMv	iceBTIME	N	Time record moved to SMF buf, in 0.01 sec	hhmmsshh
SysNam	iceSID	C	System Name	
JobName	iceJOBNM	C	Job Name	
DateRdr	iceRDS	N	Date reader recognized job	mmddyy
TimeRdr	iceRST	N	Time reader recognized card, in 0.01 sec	hhmmsshh
Step	iceSTN	N	Step number	
SubTyp	iceRSUB	N	Record subtype	

SMF 16 - Data Section

StepNam	iceSTPNM	C	Step name	
ProcTime	iceCPUT	N	Processor time (TCB time) in 0.01 sec	
RecLg	iceLEN	N	Specified record length	
KeyLg	iceKEYLN	N	Total control field length	

f1	iceFLBYT	H	Flag Byte 1	
f2	iceFLBY2	H	Flag Byte 2	
ty	iceIOTYP	H	Type of destination	
fc	iceCSFLG	H	Control statement flags byte	
f3	iceFLBY3	H	Flag Byte 3	
fw	iceWKFLG	H	Work data set flag byte	
fs	iceFSZFL	H	FILSZ/SIZE flags byte	
f5	iceFLBY5	H	Flag Byte 5, ZSORT was used = 1	
fr	iceZSRNU	H	Reason not used, 0 if was used	

DateSt	iceDateS	N	Date DFSORT started	mmddyy
TimeSt	iceTimeS	N	Time DFSORT started, in 0.01 sec	hhmmsshh
DateEn	iceDateE	N	Date DFSORT ended	mmddyy
TimeEn	iceTimeE	N	Time DFSORT ended, in 0.01 sec	hhmmsshh
SRB	iceSRBTE,S	N	SRB time used = iceSRBTE - iceSRBTS	
NbrRecs	iceEXRCS	N	Number of records sorted	
NbrBytes	iceEXBYS	N	Number of bytes sorted	
MoSize	iceMOSIZ	N	Memory Object Size	
Rat	iceRcINP / iceRcOUT	N	Ratio of number of Input Records divided by number of Output Records	n.nn
Mouse	iceMOUSE	N	Megabytes used for memory objects	
ElgIIP	iceCPUZE	N	Processor time eligible for a zIIP, 0.01 sec	
DisIIP	iceCPUZP	N	Processor time dispatched on a zIIP 0.01 sec	
WorkEx	iceWKIO	N	Number of EXCPs for all work data sets	
HyPages	iceHSPU	N	Number of Hiperspace pages used	
StorAv	iceMNVLZ	N	main storage avail to DFSORT in KB	
ExpMax	iceDYMAX	N	Final EXPMAX value	

ExpOld	iceDYOLD	N	Final EXPOLD value	
ExpRes	iceDYRES	N	Final EXPRES value	
IAM	iceIAMB	H	SORTIN access method byte	
OAM	iceOAMB	H	SORTOUT access method byte	
WBLK	iceWBLK	N	Work data set tracks used	
NbrWkDs	iceNDYNA	N	Number of allocated work data sets	
DSA	iceDSA	N	DSA value in effect	
WEXS	iceWEXS	N	Number of extents initially allocated for all work data sets	
WEXE	iceWEXE	N	Number of extents allocated for all work data sets when sorting terminated	
WALLS	iceWALLS	N	Number of tracks initially allocated for work data sets	
WALLE	iceWALLE	N	Number of tracks allocated to work data sets when sorting terminated	
KeyNM	iceKEYNM	N	Number of Sort or Merge control fields	
EXINN	iceEXINN	N	Number of calls to the access method used for SORTIN	
EXOUT	iceEXOUT	N	Number of calls to the access method used for SORTOUT	
SinDsn	iceIDSNM	C	SORTIN data set name	
SoutDsn	iceODSNM	C	SORTOUT data set name	
INPDS	iceINPDS	N	Number of SORTIN data sets, including concatenated data sets	
FILSZ	iceFILSZ	N	Value specified for FILSZ/SIZE	
fmx	iceMNFLG	H	SIZE=MAX in effect? Bit 0 =1 means yes	
InMrg	iceINMRG	N	Number of intermediate merges performed for a Sort application	

3. Messages and Error Codes

The Extract Program can return different return codes:

0	No errors or warnings
4	Messages of note have been issued.
8	A warning that messages have been issued that you should review. Either important SMF/RMF record types were missing from the input file or there is questionable data in some of the intervals (that you may want to exclude).
12	Something is critically wrong with the parameters or no data fit within the SYSID and timeframe requested.
16	The program failed to run.
20	CP3KEXTR couldn't write to the PRINT001 DD.
225	No data was found that meets the input specification. This could happen if the specified SysId was not present in the SMF input dataset or if the date and time selections did not cover the time periods of the data.

4. EDF Output File

The EDF (Enterprise Data File) is the primary output of the Extract program. It is a flat text file that contains the summarized information drawn from the SMF scan. It is an input to other analysis applications like zBNA, zCP3000, and zPCR.

4.1 EDF Format

The EDF is a text file with 80-character fixed-size records divided into named sections. A section name begins in the first position of a line while subsequent section content always starts in position 7. Each record is organized as follows:

Column	
1-4	Section name.
5	"S" when a section is specified. (This value will change when zCP3000 uses this format for output.)
6	Always blank
7-72	Information in the form KEYWORD=data appropriate to the section.

The section content consists of a series of expressions, one for each target SMF field. An expression has a key name followed by an equal sign followed by one or more values. Some have just a single value but more often there will be a series of multiple values (a vector) that is made up of the key name, the equal sign, and the following sequence of items:

- Average of the individual values
- Minimum value
- Maximum value
- Standard deviation of the individual values
- Count of values: the number of individual sample values (see below)
- List of individual sample values – one for each reporting interval (see below)

The first 5 items, the summary values, are always present in a multi-item vector. If the individual sample values are not all the same then the list of individual sample values will be present and will follow the count.

But if all the sample values are the same the list of individual sample values will be suppressed. In this case the minimum and the maximum will be equal and the count will indicate the number of sample values but the sample values will not be included. Just the 5 summary numbers will be present.

Issues With Averaging

The average calculation includes all of the individual values, one for each reporting interval, with equal weight. This means that certain measures may result in an average that gives a misleading impression. In such a case the user may wish to examine the detail data.

For example, the DASDRSPV (DASD Response Time) vector may include intervals with very few I/Os along with an interval that has many. The resulting average may not be useful.

Other examples are: DELAYV (the average wait for a tape mount) or ALLOCV (the average allocation time for a tape drive). Intervals which have no mounts will have zero for these intervals and will distort the average calculation.

4.2 Sample EDF output

Here is an example of EDF output:

```
HEAD ENT=zCP3000 Inc. R70INT=30 SMFDSN=MVSSPT.AQFT.SMF.D08158
SOURCE=CP3KEXTR10/04/18 VER=3.86 RUNDATE=10/04/18
RUNTIME=15:31:28.98
CEC S CECID=CEC9F30 CPUMOD=2097-742 SUPVR=LPAR VC=00 PR=46
SR=09F30 CPV=42 42 42 0 10 IFLV=2 2 2 0 10 ZIIPV=2 2 2 0 10
CPUMODV=2097-742 CMIND=1 1 1 0 10 HWCMODV=2097-E56 HWIND=1 1 1
0 10
SYS S SYSID=AQFT SCP=Z/OS VERSION=ZV010900 HPTSID=MCLXCF01
NSAMPS=10 GL=1 WC=0 BIT=64 RMFV=RMF0719 HIPDSP=1 PAR=1.85
RMFINT=1 DTSRC=RMF RMFINTL=30 SRM=35476.72 GMTOF=-4:00
SYSN=AQFT CS=25601 ES=0    CSAVAIL=12824.1 ESAVAIL=0
SCPCS=275.7 SCPES=0 CECUTILV=18.4 14.5
21.3 1.7 10 18.1 19.8 17 18.8 21.3 19.6 17.6 19.4 18.1 14.5
PAGEV=1 0 3.5 1.2 10 0 0.2 0.7 0.5 3.5 2 2.4 0.5 0 0 PAGEDS=7 7
7 0 10 CSV=25601 25601 25601 0 10 CSAVAILV=12824.1 11745.8
14676.4 880.2 10 14676.4 14083.1 12989.6 13114.4 12629.9
12346.7 12460.6 12132.7 11745.8 12061.8
SCPCSV=275.7 274.6 276.3 0.6 10 274.7 275.2 274.6 276.1 276
276.2 276.3
276 275.9 275.5 AUIC=65535 65535 65535 0 10 MUIC=65535 65535
65535 0 10
MXUIC=65535 65535 65535 0 10 AINR=2.2 1.7 3 0.4 10 3 2.8 1.7
2.3 2 2.2
 2.1 2.1 1.8 1.7 AIN=156.2 131.1 172.8 13.4 10 131.1 136.9 142.9 161.8 162
 165.8 166.5 172.8 165 156.9 LOGSWAP=100 100 100 0 10 LOGEFF=100 100 100 0
10 BATCHV=5 2.6 7.6 1.4 10 6.1 7.6 6.6 5 5.2 3.9 4.9 4.7 3.8
2.6
STCV=201.8 193.8 220.5 7.9 10 199.5 193.8 195.1 200.2 195.2
202.9 197.9
201.4 211.9 220.5 TSOV=121 44.5 153.7 35.8 10 44.5 72.4 113.6
135.5 151.2 153.7 153.1 149.4 134.4 102.6 OCPU=0 0 0.2 0.1 10 0
0 0.2 0 0 0 0 0 0 0 OCPU2=0 0 0.2 0.1 10 0 0 0.2 0 0 0 0 0 0 0
LREV=0.1 0 0.1 0 10 0 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0
DASDIOV=1553.4 981.5 2078.1 307.9 10 1319.7 1297.9 1964.5
2078.1 1519.9 1400.6 1659.2 1653.1 1659.4 981.5
DASDRSPV=1.7 1.4 2.2 0.3 10 1.4 1.4 2 1.6 1.7 2 1.8 2.2 1.4 1.6
DASDSERV=1.2 1 1.5 0.2 10 1 1 1.5 1.2 1.3 1.3 1.1 1.5 1 1.2
TAPEIOV=12.8
0.7 42.6 13.2 10 42.6 7.6 3.3 19 0.7 9.1 30.8 7.8 5.6 1.7
TAPEALC=10.5 6
14 2.3 10 14 10 11 10 10 12 10 8 6 14 IFANF=256 256 256 0 10
IIPNF=256
256 256 0 10 WLA=718 718 718 0 10 LAC=86.6 67 107.5 13.1 10
96.5 107.5
102 99 87 76.5 77 77 76 67 SMF23NFR=24587.1 11934.9 37324.7
7912.2 10
```

```
11934.9 18047.3 37324.7 31933.1 24180 26533.7 22917.6 35236.9
22175.6
15587.5 SMF231RF=12127.7 5588.6 18041.3 3368.3 10 5588.6
10803.6 12779.8
15498.2 12369.2 14437 12095.1 18041.3 11600.2 8064.1
SMF23NIO=393.8 159.7 510.1 109.7 10 159.7 325.8 440.3 488.2
510.1 450.3 476 481.7 4332 19838.6 17560.6 14029.8 22198.6
14907.7 9937.2 LPARNO=1
LPAR=AQFT VICTEST VMTOOL1 AQCF1 AQHO AQLINX HOCF4 GDLVM7
LNXVM14 POKVMXA1 PHYSICAL LPWGT=0 215 0 0 3 0 0 315 0 -1 -1 -1
0 2 0 0 1
0 -1 -1 -1 0 32 0 0 4 0 0 32 0 LPCAP=0 0 0 0 0 0 0 0 0 0
LPCL=AQFT 0 0 0 AQHO 0 0 0 0 0 LPCS=25600 5120 65536 3072 6144
2048 3072
8192 24576 131072 LPES=0 5120 65536 0 0 1024 0 2048 8192 65536
LPPRC1=11
11 11 0 10 LPPRP1=2 2 2 0 10 LPPCTM1=4740.1 2624 7705.2 1573.7
10 7705.2
7245.5 2624 4953.9 4217.2 5348 4198.3 4508.7 3433.3 3167.1
LPPPTM1=13.3
5.4 51.4 13 10 11.6 12.8 13.9 6.2 9.2 8.3 5.4 7.1 7.1 51.4
LPWT1=215 215
215 0 10 LPWP1=215 215 215 0 10 LPWTT1=215 215 215 0 10 LPPRC2=5
5 5 0 0  LPPCTM2=14.3 13 17.4 1.1 10 13 14.4 13.5 13.6 13.9 14.1
14.4 14.5 17.4 14.4 LPWT2=3 3 3 0 10 LPWTT2=3 3 3 0 10 LPPRC3=16
16 16 0 10       LPPCTM3=13681.6 9660.2 18242.7 2191.7 10
10894.6 13420.5 14072.6 14065.3 18242.7 14230.9 12961.8 15016.7
14250.7 9660.2 LPWT3=315 315 315 0 10 LPWTT3=315 315 315 0 10
LPPRC4=1 1 1 0 10 LPPCTM4=3599.8 3599.8 3599.9 0 10 3599.8
3599.8 3599.8 3599.9 3599.9 3599.8 3599.9 3599.8 3599.9 3599.8
LPWT4=-1 -1 -1 0 10 LPWTN4=-1 -1 -1 0 10 LPWTT4=-1 -1 -1 0 10
LPWTX4=-1 -1 -1 0 10 LPPRC5=5 5 5 0 10 LPPRP5=2 2 2 0 10
LPPCTM5=83.1 79.7 85.8 1.8 10 81.1 79.7 82 82.4 83.7 83.8 85.4
84.2 85.8 82.9 LPWT5=2 2 2 0 10 LPWP5=2 2 2 0 10 LPWTT5=2 2 2 0
10 LPPRC6=2 2 2 0 10 LPWT6=1 1 1 0 10 LPWTT6=1 1 1 0 10 LPPRC7=1
1 1 0 10 LPPCTM7=3584.6 3571.2 3596.1 9 10 3592.7 3595.1 3596.1
3582.6 3578.7 3571.2 3588.4 3572.4 3576.6 3591.9 LPWT7=-1 -1 -1
0 10 LPWTN7=-1 -1 -1 0 10 LPWTT7=-1 -1 -1 0 10 LPWTX7=-1 -1 -1 0
10 LPPRC8=3 3 3 0 10 LPPCTM8=591 464.5 775.5 102 10 522.8 775.5
464.5 628.2 586.1 489.5 663.2 482.3 732.5 565.3 LPWT8=32 32 32 0
10 LPWTT8=32 32 32 0 10 LPPRL9=2 2 2 0 10 LPPLTM9=23.2 22.6 24.3
0.5 10 22.7 23 22.6 22.9 23.4 24.1 23.2 24.3 23.2 22.9 LPWT9=4 4
4 0 10 LPWTT9=4 4 4 0 10 LPPRC10=3 3 3 0 10 LPPCTM10=229.1 187
287.6 28.8 10 187 196.6 217.2 226 225.4 211.5 287.6 256.8 257.5
225 LPWT10=32 32 32 0 10 LPWTT10=32 32 32 0 10 LPPCTM11=1315.6
807.2 2113.8 387.5 10 807.2 963.5 960.8 1231.8 1636.8 2113.8
1262.5 1751.9 1339.6 1087.9 LPPLTM11=35.1 29.8 40.9 3.2 10 29.8
31.4 32.4 34.6 37.5 40.9 35.8 38.6 36.1 33.6 LPPPTM11=0.2 0.2
0.4 0.1 10 0.2 0.2 0.2 0.2 0.3 0.3 0.2 0.2 0.2 0.4
SAMPS DATE=06/06/08 TIME=07:00 DUR=01:00
SAMPS DATE=06/06/08 TIME=08:00
DUR=01:00  .....
SAMPS DATE=06/06/08 TIME=16:00 DUR=01:00
WORKS WDESC=PRIMEAPP.APPPRIME.1 WIO=0 WCS=0 WES=0 WPAGE=0
WTRANSRS=0 WPRTY=50 WMPL=0 WRESP=0 WIORESPV=0.7 0.5 1.2 0.2 10
1.2 0.6 0.6 0.5 0.7 0.5 0.9 0.6 0.8 0.5 WCPUTM=0.1 0 0.1 0 10 0
0 0 0.1 0.1 0 0.1 0.1 0.1 0.1 WIMP=2 2 2 0 1
WORKS WDESC=PRIMEBAT.COMBUILD WIO=255.3 WCS=1.87 WES=0 WPAGE=0
WTRANSRS=0.01 WPRTY=32 WMPL=0.22 WRESP=197.49 MPLV=0.2 0 0.6
0.2 10 0 0 0.1 0.6 0.1 0.1 0.1 0.5 0.3 0.1 TRANV=0.01 0 0.01 0
10 0 0 0.01 0 0.01 0 0 0.01 0.01 0 RESPV=131.81 1.3 755.26
```

```
217.32 10 1.8 1.3 755.26 229.86 18.27 28.92 42.86 82.48 95.44
61.91 WIOV=83.3 0.1 212.6 59.3 10 0.2 0.1 67.7 212.6 54.1 86.7
86.4 118.1 130.4 76.4 WIORESPV=1.9 1 3.1 0.7 10 2.5 3.1 1.1 2
1.3 1 1.2 3 1.9 1.4 WCPUTM=65.6 0.2 179.6 57.5 10 0.2 0.2 29.1
179.6 52.8 38.9 57.1 122.8 137.8 37.4 WSRBTM=5.9 0 19.4 6.6 10
0 0 2 19.4 2.1 3.5 3.9 17.3 8.1 3.2 WCSV=1.9 0.1 5.2 1.9 10 0.1
0.1 0.6 5.2 0.7 0.9 1.5 4.1 4.5 1 WEXCPV=255.3 0.1 854.7 262.2
10 0.2 0.1 163 854.7 115.2 206.9 178.6 634.7 275.3 124.5 WDIV=2
0 3.2 1.1 10 0 0 2.9 3.2 1.5 2.3 1.9 2.8 3 2 WDCV=0.1 0 0.2 0.1
10 0 0 0.1 0.1 0.1 0.1 0.1 0.2 0.2 0.1 WPIV=0.4 0 1.5 0.4 10
1.5 0 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 WPITYP=1 1 1 0 10
WPIVAL=25 25 25 0 10 WPIVAT=69.3 0 89.6 30.9 10 16.7 0 81.5
83.2 87.9 86.6 89.6 79.2 82.3 86.4 WIMP=3 3 3 0 10
WDSNS WDSNV=C90PSL WDSNN=*C90PSL WDR=0.1 WDHR=59.6 WDHRT=1.2 WDC=1
WDD=0 WDP=0.2 DRT=1.4
.....
WDSNS WDSNV=ZF8F1F WDSNN=OMVS.ZFS.SHUT.VAULT.TST.DATA WDR=0.1
WDHR=2.9
WDHRT=7.4 WDC=1.2 WDD=5.8 WDP=0.3 WDRT=7.4
WORKS WDESC=SYSTEM.SYSOTHER WIO=0 WCS=0 WES=0 WPAGE=0
WTRANSRS=0.11 WPRTY=250 WMPL=8.71 WRESP=72.4 MPLV=8.7 6.8 10.8
1.3 10 6.8 6.8 7.5 8.2 9.1 8.9 9.4 9.8 9.8 10.8 TRANV=0.11 0
0.42 0.13 10 0 0.01 0 0.07 0.04 0.07 0.07 0.29 0.42 0.1
RESPV=2339.89 0.02 22692.51 6786.2 10 22692.51 0.7 0.04 0.16
562.58 60.21 12.04 0.08 70.55 0.02 WIOV=1.1 0.1 5.2 1.5 10 0.4
1.3 0.1 0.6 5.2 2.4 0.1 0.3 0.6 0.1 WIORESPV=5.1 0.7 10.8 3.1
10 0.7 5.7 3.8 2.2 6.1 6.8 9 10.8 1.2 4.4 WCPUTM=25.9 10.2 96.1
23.9 10 20.9 23.7 25.2 11.4 16.7 15 10.2 18.7 20.7 96.1
WIIPV=13.1 5.3 50.6 12.8 10 11.4 12.6 13.7 6 8.9 8 5.3 6.9 7
50.6 WIIPCPV=0.2 0 1.3 0.4 10 0 0.1 0.1 0 0.1 0.1 0 0 0 1.3
WPITYP=4 4 4 0 10
```

```
CF  S HPTSID=MCLXCF01 CFNAME=AQCF2 CFTYPE=2094-S38 CFNCPS=01
FLVL=15
CFSTOR=2983 CFDMPSTOR=6 CFSTORAV=2515.5 FPAM=2 FSCL=14 FTAP=CBP
CBP   CFREQ=2960.54 FSCCV=0 0 0 0 10 CFLINKS=14 CFUT=11.5 3
21.7 7 10 5.1 3.5 3 12.3 15.9 21.7 8.4 21.5 17.9 5.7 EFFCP=1 1
1 0 10 CFREQV=2960.5 708.9
6104.7 2010.4 10 1144.8 831.2 708.9 2793.3 4111.4 6104.7 1912.7
6000
4722.4 1276 PEER=AQCF1 PRTYPE=2097-E56 PRSR=19F30
CFS S STRNAME=DSNDB2L_GBP0 STRTYPE=CACH STRSIZE=11 FLG=0 FLG1=0
CFE S SYS=AQFT AREQV=0.03 0 0.06 0.02 10 0.01 0.01 0.01 0.05
0.06 0.04 0 0.04 0.05 0.01 ASRVV=410.22 151.38 745.25 228.8 10
636.47 745.25 551.41 151.38 153.36 165.6 527.5 158.34 345.8
667.07 SREQV=1.23 0.03 2.27 0.55 10 1.38 0.91 1.74 1.04 2.27
1.34 1.24 1.36 1.01 0.03 SSRVV=11.17 8.82 16.07 2.53 10 9.88
9.94 9.27 10.94 11.02 16.07 8.82 9.25 10.45 16.01 SQV=0 0 0 0
10 SQTMV=0 0 0 0 10 SCNV=0 0 0 0 10 SFCNV=0 0 0 0 10 SSTAV=0 0
0 0 10 SHTOV=0 0 0 0 10 SLTOV=0 0 0 0 10 STRCV=1.26 0.04 2.33
0.56 10 1.39 0.92 1.75 1.09 2.33 1.38 1.24 1.4 1.06 0.04
....
BCU S BCUID=VFV1611 CTYPE=9393-2 CACHE=1024 NVS=8 NOAD=5
BCUSLO=0 BCUSKEW=5 BCUIO=0.02 BCURESP=4.95 BCUCONN=4.55
BCUDISC=0.02 BCUPEND=0.38 BCUQUE=0 BCUIOV=0.02 0.02 0.02 0 10
BCURESPV=4.95 4.72 5.94 0.34 10 4.9 5.94 4.92 4.91 4.73 4.83
4.83 4.72 4.91 4.8 BCUCONNV=4.55 4.55 4.56 0 10 4.55 4.55 4.55
4.55 4.55 4.55 4.55 4.55 4.56 4.55 BCUDISCV=0.02 0.02 0.02 0 10
BCUPENDV=0.38 0.16 1.37 0.34 10 0.33 1.37 0.36 0.34 0.16 0.27
0.26 0.16 0.33 0.23 BCUQUEV=0 0 0 0 10 BCUR=0 BCUH=0 BCUW=0
BCUG=0 BCUC=0 BCUF=0 BCUK=0 BCUD=0 BCUB=0 BCURV=0 0 0 0 10
BCUHV=0 0 0 0 10 BCUWV=0 0 0 0 10 BCUGV=0 0 0 0 10 BCUCV=0 0 0
0 10 BCUFV=0 0 0 0 10 BCUKV=0 0 0 0 10 BCUDV=0 0 0 0 10 BCUBV=0
0 0 0 10 BCUDASD1=33903 BCUDASDN1=5 PATHS PID=P72 PTYPE=E
PBUSYV=0 0 0.01 0 10 0 0 0 0 0 0 0 0.01 0 0 PBYV=0 0 0.01 0 10
0 0 0 0 0 0 0 0.01 0 0 PIOV=0.01 0.01 0.01 0 10 PATHS PID=P73
PTYPE=E PBUSYV=0 0 0.01 0 10 0 0 0 0 0 0.01 0 0 0 0 0 PBYV=0 0
0.01 0 10 0 0 0 0 0.01 0 0 0 0 0 PIOV=0.01 0.01 0.01 0 10 PATHS
PID=P74 PTYPE=E PBUSYV=0 0 0.01 0 10 0 0 0 0 0 0 0 0 0.01 0 0
PBYV=0 0 0.01 10 0 0 0 0 0 0 0 0.01 0 0 PIOV=0.01 0.01 0.01 0
10 PATHS PID=P75 PTYPE=E PBUSYV=0 0 0.01 0 10 0 0 0 0 0.01 0 0
0 0.01 0 PBYV=0 0 0.01 0 10 0 0 0 0 0 0.01 0 0 0 0.01 0 PIOV=0.01
0.01 0.04 0.01 10 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.04
0.01
ACT S V=FV1611 A=1611 T=33903 R=0.02 SDS=0 Q=0 P=0.38 D=0.02
C=4.55 SDR=0.35 SG= DS=0 RWR=0 RDHT=0 FWHT=0 SQSTG=0 PC=0
PFWD=0 PCW=0 CWH=0 ST=N CFWB=0
....
ACT S V=FV163A A=163A T=33903 R=0 SDS=0 Q=0 P=0 D=0 C=0 SDR=0
SG= DS=0 RWR=0 RDHT=0 FWHT=0 SQSTG=0 PC=0 PFWD=0 PCW=0 CWH=0
ST=N CFWB=0
BCUTS BCUID=A6D70 CTYPE= CACHE=0 NVS=0 NOAD=4 AAD=4 BCUIOV=0 0
0 0 10
ALLOCV=12.3 0 68.3 24.7 10 0 68.3 54.3 0 0 0 0 0 0 0 MOUNTV=0.2
0 1 0.4
10 0 1 1 0 0 0 0 0 0 0 DELAYV=42.7 0 273 89.5 10 0 273 154.1 0
0 0 0 0 0
0 CONNV=0.1 0 0.2 0 10 0 0.1 0.1 0.2 0.1 0.1 0 0 0 0.1
DISCV=5.8 0 57.1
17.1 10 0 0.2 57.1 0.2 0.1 0.1 0.1 0 0 0.1 BCUTAPE1=3590
BCUTAPEN1=4
```

4.3 EDF Sections

The following EDF sections may be produced:

HEAD			This contains the description of the account or ENTerprise. A required section.
CEC			This contains the CECID/CPCID and the number of System Images in the EDF. A required section.
SYS			This is the System Image. This section contains the variables describing the system image and the number of subsections. A required section.
VRPR			A virtual processor section. This details the topology of a specific processor. Where coordinates represent chip, DCM, book, drawer etc
SAMP			The sample section. A brief description of the file. One section for each sample.
SOFT			
WORK			Each of these sections describes a workload running on the system image. One section for each workload. Optional
WK30	↴		
	WDSN		For each workload, this section represents the Data Set data found in the Type 42 data. For DSNs with a low rate (<1) the data is accumulated by VOLSER. This will appear as *VOLSER.
CF	↴		For each Coupling Facility.
	CFS	↴	For each Coupling Facility Structure.
		CFE	For each CFS with request data for the structure. For each Coupling Facility Structure there will be an entry for each connected system
		CFL	Information from the Channel Path Data section for each CHPID listed in the Local Coupling Facility Data section.
DCM			For each DCM channel in a SYS there will be a section. Optional
BCU	↴		For each DASD BCU (Controller) there will be a section, one for each BCU. Optional
	PATH		The path section will contain data for those paths connected to this BCU, one section for each Path. Optional even if BCU is selected.
	ACT		The actuator section will contain the data for the actuators running on this controller; one section for each actuator. Optional even if BCU is selected. Required if path is present.
BCUT	↴		For each TAPE BCU (Controller) there will be a section, one for each BCU. Optional

	PTHT		The path section will contain data for those paths connected to this BCU, one section for each Path. Optional even if BCU is selected.
BCUO	↴		For each other BCU (Controller) there will be a section, one for each BCU. Optional
	PTHO		The path section will contain data for those paths connected to this BCU; one section for each Path. Optional even if BCU is selected.

4.4 Head Section

ENT	Enterprise Name	Char (50)	User input
R70INT	Longest RMF interval in the SMF	number	RMF70INT truncated to minutes
SMFDSN	SMF Data Set Name	Char (44)	RDJFCB
SOURCE	Program creation data	Char	CP3KEXTRmm/yy
VER	Version number	Char	n.nn
SORT	Extract program SORT param	Char	Y/N
RUNDATE	Extract program run date	Char	mm/dd/yy
RUNTIME	Extract program run time	Char	hh:mm:ss.hh
D1	Number of DATA file type 1 lines	number	D1=nnnn
D2	Number of DATA file type 2 lines	number	D2=nnnn
D3	Number of DATA file type 3 lines	number	D3=nnnn
D4	Number of DATA file type 4 lines	number	D4=nnnn
D5	Number of DATA file type 5 lines	number	D5=nnnn

4.5 CEC Section

CECID or CPCID	CEC Identifier	Char	User
SUPVR	Supervisor	Char	
CPUMOD	CPU Model	Char	SMF70MOD SMF70VER
VC	Version Code	Char	SMF70VER
PR	Number of Processors including ICFs	Number	SMF70BNP. Of last sample.
SR	Serial Number of the processor	Number	SMF70SER, SMF70CSC

MAXPU	Number of processor cores available in this machine	Number	SMF70MAXPU
PRV	Number of Processors including ICFs etc.	Vector	SMF70BNP. Appears only if PR= changed during run.
CPV	Number of CP processors	Vector	Count of CP processors in PHYSICAL partition
ICFV	Number of ICF processors	Vector	Count of ICF processors in PHYSICAL partition
IFLV	Number of IFL	Vector	Count of IFL processors in PHYSICAL partition
ZAAPV	Number of zAAPs	Vector	Count of IFA or AAP processors in PHYSICAL partition
ZIIPV	Number of zIIPs	Vector	Count of IIP processors in PHYSICAL partition
CPUMODV	Names of the CPCs	Multiple text strings	SMF70MOD SMF70MDL
CMIND	Index of current CPC in CPUMODV	Vector	
HWCMODV	Name of the hardware CPC	Multiple text strings	SMF70MOD SMF70HWM
HWIND	Index of current hardware CPC in HWCMODV	Vector	

4.6 SYS Section

SYSID	SYSID	Char	SMF70SID
HPTSID	Parallel Sysplex name	Char	SMF70XNM
NSAMPS	Number of Samples	number	
SCP	z/OS software level	char	SMF70MVS
VERSION	SCP level	char	SMF70RLS
SRM	SRM Constant	number	SMF72ADJ
GL	Goal or Compat Mode	1/0	1 if 72.3 records are present
WC	Wait Complete. 1 if Wait Complete is set for this partition.	1/0	(SMF70VPF bit SMF70WSA)
BIT	64 bit mode indicator	1	SMF70EME. Appears only if in 64 bit mode.
PAR	Peak:Avg. Ratio	number	
RMFINT	same as input parameter	number	

DTSRC	Source of Data	RMF or CMF	SMF70RV2 bit x'0080' on means CMF
HDV	HiperDispatch	Vector	0=off , 1=on SMF70HHA
ABSMSUCP	Indicates when absolute MSU capping is active	Vector	SMF70HAM bit in SMF70HHF
RMFINTL	Average length of RMF interval in Minutes	number	
GMTOF	offset GMT	number (-)hh:mm	SMF70LGO
SNAM	System name	Char	SMF70SNM
CPUWAIT	Seconds of CPU Wait Time	Vector	SMF70WAT
CPUPWAIT	Seconds of CPU Wait Time on zIIP processors	Vector	SMF70WAT
CPUZWAIT	Seconds of CPU Wait Time on zAAP processors	Vector	SMF70WAT
PAGEDS	Number of Page Datasets	vector	SMF75PSN
IOCPDT	Date & time from IOCP file	Char	
IODFDT	Date & time from IOQ data	Char	R783TDT & R783TTM
CECUTILV	Statistics from samples for CPU% for CEC.	Vector	SMF70WAT SMF70PDT

BOOSTCLA	An 8-bit array where each bit indicates a unique value of bits 13-15 of SMF70FLA (only if Boost is active)	Vector	SMF70FLA
BOOSTFLA	x'01' when SMF70FLA bit 9 is on x'02' when SMF70FLA bit 10 is on	Vector	SMF70FLA
PAGEV	System I/O Rate to Page DSNs	Vector	SMF75SIO
DMDPGV	Demand paging rate	Vector	SMF71PIN and SMF71POT
HICOM	High Common	Vector	SMF71CRA
HISHARE	High Shared	Vector	SMF71SRA
CSV	CS installed MB stats	Vector	SMF71TFC+SMF71FIN
ESV	ES installed MB stats	Vector	SMF71OLE
CSAVAILV	Amount of available central storage in MB. stats	Vector	SMF71AVF
ESAVAILV	Amount of available expanded storage in MB. stats	Vector	SMF71ASA

NONPG	Non-pageable frames	Vector	SMF71AVX
SCPCSV	SCP pages (Nucleus, SQA, LPA, CSA)	Vector	SMF71FIN + ASR + ALP + AVP
SCPESV	SCP pages (Nucleus, SQA, LPA, CSA)	Vector	SMF71ASE + LAE + CAE
PGTOES	Total pages to ES	Vector	SMF71PES
PGFROMES	Total pages from ES	Vector	SMF71RES
ESAUX	Total pages migrated ES to AUX	Vector	SMF71PEA
AUIC	Average UIC stats	Vector	SMF71ACA
MUIC	Minimum UIC stats	Vector	SMF71LIC
MXUIC	Maximum UIC stats	Vector	SMF71HIC
PAGEMB	Minimum total number of local page data set slots, in MB	Vector	SMF71MNA
SCMTL	Minimum total number of 4K SCM blocks available to ASM, in MB	Vector	SMF71TSM
SCMMA	Minimum number of available (not in-use) SCM blocks, in MB	Vector	SMF71ASM
FR1RN	Number of first reference faults taken per second	Vector	SMF711RN
FRCAM	Minimum number of avail CS Frames (does include 1M frames)	Vector	SMF71CAM
FRL7M	Minimum number of 1 MB not in use frames in the LFAREA	Vector	SMF71L7M
FRL9A	Average nbr of 1MB Frames Available	Vector	SMF71L9A
FRL9M	Minimum nbr 1MB Frames In Use	Vector	SMF71L9M
CSMINV	Minimum number of Available page frames (doesn't include 1M frames), in MB	Vector	SMF71MNF
AMIGR	Average migration age stats	Vector	SMF71AMA

MMIGR	Minimum migration age stats	Vector	SMF71LMA
AINR	Average in and ready	Vector	SMF70RTT
AIN	Average in	Vector	SMF70ITT
AOUTR	Average out and ready	Vector	SMF70OTT
LOGSWAP	Logical Swap %	Vector	SMF71OTT - AXD -ESD
LOGEFF	Logical Swap effective %	Vector	LOGSWAP - LES - LAX

BATCHV	Average Batch users	Vector	SMF70BTT
STCV	Average Started Task users	Vector	SMF70STT
TSOV	Average TSO users	Vector	SMF70TTT
ASCHV	Average ASCH users	Vector	SMF70PTT
OMVSV	Average OpenMVS users	Vector	SMF70XTT
OCPU	Percent of the time that the in/ready count is greater than # of processors	Vector	SMF70Rnn
OCPU2	Percent of the time that the in/ready count is greater than # of processors plus 1	Vector	SMF70Rnn
LREV	Logical Ready	Vector	SMF70LTT
DASDIOV	Total DASD I/O stats	Vector	SMF74SSC
DASDRSPV	Total DASD Response Time	Vector	computed from SMF74SSC + QUE + CNN + DSC + PEN + MEC
DASDSERV	Connect + Disconnect DASD Time	Vector	computed from SMF74SSC + CNN + DSC + MEC
TAPEIOV	Total TAPE I/O stats	Vector	SMF74SSC
TAPEALC	Max Allocated Tape Devices	Vector	SMF74MLC
LPARBUSYG	LPAR Busy seconds for GPs	Vector	SMF70_LPAR_BUSY
LPARBUSYA	LPAR Busy seconds for zAAPs	Vector	SMF70_LPAR_BUSY
LPARBUSYI	LPAR Busy seconds for zIIPs	Vector	SMF70_LPAR_BUSY
IFANF	IFA Normalization Factor (mult this number times time on IFA divided by 256 for equivalent time on CP)	Vector	R723NFFI
IIPNF	IIP Normalization Factor (multiply this number times time on IIP divided by 256 for equivalent time on CP)	Vector	R723NFFS
WLA	Defined Capacity	Vector	SMF70WLA
LAC	Rolling 4 Hour Average	Vector	SMF70LAC
LPARNO	Index our LPAR in the LPAR array (next field)	Number	SMF70PTN
LPAR	Names of the LPARS	Vector	SMF70LPM

LPWGT	Vector of weights for the partitions. 3 per partition: min, def & max. A value of -1 for the defined weight means dedicated processors. (Physical partition omitted.)	Vector	SMF70MIS, SMF70BPS, SMF70MAS
LPCS	Vector of the central storage sizes for the LPARS.	Vector	SMF70CSF
LPES	Vector of the expanded storage sizes for the LPARS.	Vector	SMF70ESF
LMSUn	Defined Capacity	Vector	SMF70MSU
LPPCTMn	Seconds of 'CP' CPU time for LPAR n.	Vector	SMF70PDT
LPPITMn	Seconds of 'ICF' CPU time for LPAR n.	Vector	SMF70PDT
LPPZTMn	Seconds of “zAAP CPU time for LPAR n.	Vector	SMF70PDT
LPPLTMn	Seconds of 'IFL' CPU time for LPAR n.	Vector	SMF70PDT
LPPPTMn	Seconds of ‘zIIP” CPU time for LPAR n.	Vector	SMF70PDT
LPPOTMn	Seconds of other (?) CPU time for LPAR n.	Vector	SMF70PDT
LPPCSn	Average MB of central storage for LPAR n.	Vector	SMF70CSF
LPPRCn	Average number 'CP' processors for LPAR n.	Vector	sum of SMF70ONT (or whole interval if field is not present.)
LPPRIn	Average number 'ICF' processors for LPAR n.	Vector	sum of SMF70ONT (or whole interval if field is not present.)
LPPRZn	Average number of ‘zAAP’ processors for LPAR n.	Vector	
LPPRLn	Average number 'IFL' processors for LPAR n.	Vector	sum of SMF70ONT (or whole interval if field is not present.)
LPPRPn	Average number of “zIIP” processors in LPAR n	Vector	
LPPROn	Average number other(?) processors for LPAR n.	Vector	sum of SMF70ONT (or whole interval if field is not present.)
BOOSTn	System Recovery Boost information =0: none, 1: zIIP, 2: Speed	Vector	SMF70_BoostInfo
LPIRDn	Indicates that SMF70FPG bit 4 is set	Vector	SMF70FPG
LPWTn	Average GCP LPAR weights for LPAR n.	Vector	SMF70ACS
LPWIn	Average ICF LPAR weights for LPAR n.	Vector	SMF70ACS
LPWLn	Average IFL LPAR weights for LPAR n.	Vector	SMF70ACS
LPWZn	Average ZAAP LPAR weights for LPAR n	Vector	SMF70ACS

LPWPn	Average ZIIP LPAR weights for LPAR n	Vector	SMF70ACS
LPWLMCn	Vector of percentage of time that the WLM considers to cap the LPAR.	Vector	SMF70NSW
LPWLMDn	Vector of percentage of time that the WLM actually did cap the LPAR.	Vector	SMF70NCA

LPCAPn	Vector 1 and 0 corresponding to whether the GCP in LPAR n are capped. 1=capped (field is absent if not capped)	Vector .	SMF70VPF bit SMF70CAP Vector for each partition (Physical is omitted). One entry per sample
LPRWTAn	Vector of absolute capping value in hundredths – for GCP	Vector	SMF70HW_CAP_Limit
LPRWTAZn	Vector of absolute capping value in hundredths – for zAAP	Vector	SMF70HW_CAP_Limit
LPRWTAPn	Vector of absolute capping value in hundredths – for zIIP	Vector	SMF70HW_CAP_Limit
LPRWTAIn	Vector of absolute capping value in hundredths – for ICF	Vector	SMF70HW_CAP_Limit
LPRWTALn	Vector of absolute capping value in hundredths – for IFL	Vector	SMF70HW_CAP_Limit
LPCAPIn	Vector of whether ICFs in LPAR are capped.	Vector	SMF70CAP
LPCAPLn	Vector of whether IFLs in LPAR are capped.	Vector	SMF70CAP
LPCAPZn	Vector of whether zAAPs in LPAR are capped.	Vector	SMF70CAP
LPCAPPn	Vector of whether zIIPs in LPAR are capped.	Vector	SMF70CAP
LPGGRPN	Hardware Group Capping – Name list for GCPs	List	SMF70HWGr_Name
LPZGRPN	Hardware Group Capping – Name list for zAAPs	List	SMF70HWGr_Name
LPPGRPN	Hardware Group Capping – Name list for zIIPs	List	SMF70HWGr_Name
LPIGRPN	Hardware Group Capping – Name list for ICFs	List	SMF70HWGr_Name
LPLGRPN	Hardware Group Capping – Name list for IFLs	List	SMF70HWGr_Name
LPGLn	Hardware Group Capping – Index into name list for GCPs	Vector	
LPZLn	Hardware Group Capping – Index into name list for zAAPs	Vector	

LPPLn	Hardware Group Capping – Index into name list for zIIPs	Vector	
LPILn	Hardware Group Capping – Index into name list for ICFs	Vector	
LPLLn	Hardware Group Capping – Index into name list for IFLs	Vector	
LPGGVn	Hardware Group Capping – Hardware Cap limit for GCPs	Vector	SMF70HWGR_Cap_Limit
LPZGVn	Hardware Group Capping – Hardware Cap limit for zAAPs	Vector	SMF70HWGR_Cap_Limit
LPPGVn	Hardware Group Capping – Hardware Cap limit for zIIPs	Vector	SMF70HWGR_Cap_Limit
LPIGVn	Hardware Group Capping – Hardware Cap limit for ICFs	Vector	SMF70HWGR_Cap_Limit
LPLGVn	Hardware Group Capping – Hardware Cap limit for IFLs	Vector	SMF70HWGR_Cap_Limit
CRYTM	Total crypto coprocessor time in secs	Vector	R7023TO*R7023SF
CRYRA	Total crypto rate	Vector	R7023CO
CRYNU	Number of coprocessors	Vector	SMF7023N
CRYTY	Coprocessor type	Vector	R7023CT
LPCRSK	Coprocessor utilization skew	Vector	(R7023TO*R7023SF)/duration
LPGRPN	Names of partition groups -- a text string with multiple LPAR names separated with a space	Text	SMF70GNM
LPLnn	Index of current group name (nn = LPAR #)	Vector	computed
LPGVnn	Group Value for partition nn	Vector	SMF70GMU
LPPRKC	Total parked GCP time for Dur in seconds	Vector	SMF70PAT
LPPRKA	Total parked zAAP time for Dur in seconds	Vector	SMF70PAT
LPPRKI	Total parked zIIP time for Dur in seconds	Vector	SMF70PAT
ZEP1 thru ZEP4		Vector	SMF70ZEP, ZER, ZEE,ZEC
IFAHP	zAAP priority	Vector	R723MFLG x'40 bit (R723MHPO)
IIPHP	zIIP priority	Vector	R723MFLG x'20 bit (R723MHPZ)
CPE_LO	CPENABLE low threshold value	Vector	SMF70CPE_LO

CPE_HI	CPENABLE high threshold value	Vector	SMF70CPE_HI
IOPBUSY	I/O processor utilization= R783IIPB / (R783IIPB + R783IIPI) * 100	Vector %	R783IIPB, R783IIPI
IOPCMPR	I/O processor utilization due to compression = R783IECB / (R783IIPB + R783IIPI) * 100	Vector %	R783IECB, R783IIPB, R783IIPI
IOPCNT	Average number of IOP Initiative Queue data sections = total of 783GIDN / Nbr of Records	Vector	783GIDN
HWADIB	HwA (Hardware accelerator compression) Tot nbr of deflate IN bytes	Vector	Sum of R7491DIB
HWADOB	HwA total nbr of deflate OUT bytes	Vector	Sum of R7491DOB
HWADCT	HwA total nbr of deflate requests	Vector	Sum of R7491DCT
HWAIIB	HwA total nbr of inflate IN bytes	Vector	Sum of R7491IIB
HWAIOB	HwA total nbr of inflate OUT bytes	Vector	Sum of R7491IOB
HWAICT	HwA total nbr of inflate requests	Vector	Sum of R7491ICT
EADMDISC	EADM (Extended Asynchronous Data Mover) Compression input 1MB blks	Vector	Sum of R7410DISC
EADMDOSC	Compression output 1MB blks	Vector	Sum of EADMDOSC
EADMDOCC	Compression nbr of requests	Vector	Sum of R7410DOCC
EADMDISD	Decompression input 1MB blks	Vector	Sum of R7410DISD
EADMDOSD	Decompression output 1MB blks	Vector	Sum of R7410DOSD
EADMDOCD	Decompression nbr of requests	Vector	Sum of R7410DOCD
SMTEFFP	Multithreading capacity numerator for zIIP	Vector	SMF70CFS
SMTEFFMP	Multithreading maximum capacity numerator for zIIP	Vector	SMF70MCFS
SMTEFFTDP	zIIP Average thread density	Vector	SMF70ATDS
CPI +(G,P)	Cycles per Instruction CPI, CPIG, CPIP	Vector	SMF 113 B0,B1
FCPI +(G,P)	Finite Cycles per Instruction FCPI, FCPIG, FCPIP	Vector	SMF 113
PRBS +(G,P)	% problem state (	Vector	SMF 113 B1, P1
PRBT +(G,P)	% problem state time	Vector	SMF 113 P32, B0

GHZ +(GHZP)	CPU speed in GHZ, GHZP	Vector	113_1_CPUSPEED or 113_2_CPSP
LPARCPU +(G,P)	= 1/CPSP/1mil * B0/ IntSec * 100	Vector	LPARCPU = LPARCPUG
L1MP +(G,P)	% Level 1 Miss	Vector	SMF 113 B1,B2,B4
L15P	% sourced from L1.5 cache	Vector	B2, B4, E128, E129
L2LP +(G,P)	% sourced from L2 cache	Vector	B2, B4, E130, E131
L2RP	% sourced from L2 remote cache	Vector	B2, B4, E132, E133
MEMP +(G,P)	% sourced from Memory	Vector	B2, B4, E128, E129, E130, E131, E132, E133, E134, E135
RMEMP +(G,P)	% sourced from Remote Memory	Vector	Varies with Model (all Engines)
SIISP +(P)	SIIS Indicator %	Vector	Varies with Model
L2P +(G,P)	% sourced from level 2 cache	Vector	E128,E129,B2,B4
L3P +(G,P)	% sourced from level 3 cache on same chip cache	Vector	E150,E153,B2,B4
L4LP +(G,P)	% sourced from level 4 cache on same book	Vector	E135,E136,B2,B4
L4RP +(G,P)	% source from level 4 cache different book	Vector	E138, E139,B2,B4 (All Engines)
RNI +(G,P)	Relative Nest Intensity	Vector	Computed
SCPL1M +(G,P)	Est. sourcing cycles/L1 miss	Vector	
TLBM (G,Z,P)	TLB1 miss % of total CPU	Vector	Computed (*)
TLBC (G,Z,P)	TLB1 cycles per TLB miss	Vector	Computed (*)
TLBP (G,Z,P)	PTE % of all TLB1 misses	Vector	Computed (*)
TLBR (G,Z,P)	TLB Miss Rate – All processors	Vector	Computed (*)
ACPIT1P	CPI on one thread (zIIP only)	Vector	Computed
ACPIT2P	CPI on second thread with SMT (zIIP only)	Vector	Computed
E224	113 counter 224	Vector	
E225	113 counter 225	Vector	
E226	113 counter 226	Vector	
E235	113 counter 235	Vector	
E247	113 counter 247	Vector	
E252	113 counter 252	Vector	

E264	113 counter 264	Vector	
E265	113 counter 265	Vector	
NNPA (+P)	NNPA total instructions executed GCP (NNPAP for zIIP)	Vector	113 counter 267
NNPA0 (+P)	NNPA instructions executed (CC=0) (NNPA0P for zIIP)	Vector	113 counter 268
AIUW (+P)	AIU Wait GCP (AIUWP for zIIP)	Vector	113 counter 269
AIUX (+P)	AIU Using GCP (AIUXP for zIIP)	Vector	113 counter 270
AIUL (+P)	AIU Local GCP (AIULP for zIIP)	Vector	113 counter 272
AIUR (+P)	AIU Remote GCP (AIURP for zIIP)	Vector	113 counter 273
AIUD (+P)	AIU Different GCP (AIUDP for zIIP)	Vector	113 counter 274
CAI	Capacity adjustment indicator	Vector	SMF70CAI
CCR	Capacity change reason	Vector	SMF70CAI
IOPRTY	I/O Priority used 1= Yes, 0=No	Constant	Velocity and R723MOVE
CMM	GCP work unit max	Vector	SMF70CMM
CTT	GCP work unit average	Vector	SMF70CTT/SRM70SRM
DMM	zAAP work unit Max.	Vector	SMF70DMM
DTT	zAAP work unit Avg.	Vector	SMF70DTT/SRM70SRM
EMM	zIIP work unit Max.	Vector	SMF70EMM
ETT	zIIP work unit Avg.	Vector	SMF70ETT/SMF70SRM
SLH	Number of entries to the I/O SLH (only GCP)	Vector	SMF70SLH/duration
TPI	Number of I/O interruptions handled with the TPI instruction (only GCP)	Vector	SMF70TPI/duration
NIOG	Number of I/Os (GCPs)	Vector	SMF70NIO / duration
NIOP	Number of I/Os (zIIPs)	Vector	SMF70NIO / duration
PAV	1=PAV used, 2=Hiper	Constant	SMF74PAV or SMF74HPV
SORTL	113 counter 255/256	Vector	E255 (z15 only) E256 (z16 & z17)

(*) see https://www.ibm.com/support/pages/node/6354583: CPU MF – Latest Update and WSC Experiences

4.7 VRPR Section – Processor Topology

LP	LPAR index	num	
PR	Processor index	num	
TOPN	Topology details	vector	SMF70CIX, POF, MaxNL, CordLx
TOPI	Index of topology detail in TOPN	vector	
TOPC	Topology changed in inteval	vector	SMF70LPF

4.8 SAMP Section – Sample data profile

DATE	Start date	mm/dd/yy	SMF70DAT
TIME	Start Time	HH:MM	SMF70IST
DUR	Duration (MINIMUM is 5 minutes)	HH:MM	SMF70INT

4.9 SOFT Section – Software used

OWN	Owner	Character	SMF89UPO
NAME	Work name	Character	SMF89UPN
VERSION	Version	Character	SMF89UPV
PRODID	Product ID	Character	SMF89UPI
SAMPCNT	Sample Count	Character	Number of samples with this record

4.10 WORK & WRKR Sections

WDESC	Description	char	User parm
WTYPE	Workload type	char	User Parm
MPLV	MPL (workload multiprogramming level)	vector	Calculate
RESPV	Avg Response time (secs)	vector	SMF72TTX (n.(4) precision)
WTRANSRS	Trans Rate/sec	num	RMF72TTX
TRANV	Trans Rate/sec	vector(n)	SMF72TTX (n.(4) precision)
WPRTY	Workload priority	num	IEAIPSnn

WHPTSID	Sysplex ID	char	SMF70XNM
WIOV	Start SubChannel count	vector	R723CIRC
WIORESPV	DASD I/O Response Time	vector	SMF72IRC, ICT, IWT, IDT, IOT & R723Cnnn
WCPUTM	Workload CPU Time in Seconds (Includes CP & IFA time.)	vector	R723CCPU, SRB, RCT, IIT, HST
WSRBTM	Workload SRB Time in Seconds	vector	R723CSRB
WPAGEV	Workload Paging	vector	SMF72PIN + R723CPIR
WCSV	Workload Central Storage	vector	SMF72FT1,2
WESV	Workload Expanded Storage	vector	SMF72ER1,2
WEXCPV	Workload Excp Count	vector	SMF72ITS + R723CIOC
WTCP	Workload CPU usage on GCP	vector	R723TSUCP
WTSP	Workload CPU usage on iiP	vector	R723TSUSP
WTOCP	Workload CPU usage on GCP but iiP eligible	vector	R723TSUOCP
WCDUR	Period duration in weighted service units		
WDCV	Workload CPU Delay Percent	vector	R723CCDE / R723CTSA * 100
WDCAP	Workload capping Delay Percent	Vector	R723CCCA / R723CTSA * 100
WDZIP	Workload zIIP Delay Percent	Vector	R723SUPD / R723CTSA * 100
WDZAP	Workload zAAP Delay Percent	Vector	R723IFAD / R723CTSA * 100
WDCCP	Workload Crypto Coprocessor Delay Percent	Vector	not collected
WDIV	Workload Delay for DASD	vector	R723CIOD / R723CTSA * 100
WIFAV	Workload zAAP time in seconds	Vector	R723IFAT
WIFACPV	Workload time on CP that could have executed on zAAP in seconds.	Vector	R723IFCT
WIIPV	Workload zIIP time in seconds	Vector	R723CSUP
WIIPCPV	Workload time on CP that could have executed on zIIP in seconds.	Vector	R723CSUC
WPIV	Workload Performance Index (-1 if missing)	Vector	Calculate

WPITYP	PI type 1=velocity goal 2=percentile response 3=discretionary 4=System 5=Average response	Vector	R723CRGF
WPIVAL	Goal Value (based on PI type)	Vector	R723CVAL
WCPCT	Goal percentage	Vector	R723CPCT
WPIVAT	Goal Attained (Velocity)	Vector	Calculate
WPROT	1=CPU, 2=STOR, 3=Both 0=Not protected	Vector	R723MCPP and R723MSTP
WIMP	Workload Importance	Vector	R723CIMP
WRTD	Number of trans (per second) that finished in .5 goal (only for Percentile Response goals)	Vector	R723TRDB
WLCK	Seconds priority raised to clear local suspend lock	Vector	R723LPDP
WENTN	Number of subsystem transactions processed within enclaves	Vector	R723ENCTRXNUM
WENTC	Number of times transaction data has been reported by subsystem work managers when deleting an enclave	Vector	R723ENCTRXCALLS
WENTE	Total execution time, in milliseconds, for all subsystem transactions reported in WENTN	Vector	R723ENCTRXETS / 1000
BCLAS	Only reporting classes, the originating service class. Only if single.	Vector	R723CLSC

4.11 WK30 Section -- Workloads when T30MAP is specified

WDESC	Description	char	User parm
WTYPE	Workload type	char	User Parm
WMPLV	MPL	vector	Calculate
RESPV	Avg Response time (secs)	vector	SMF30TRS
TRANV	Trans Rate/sec	vector	SMF72TRS
WPRTY	Workload priority	num	User parm
WIOV	Start SubChannel count	vector	SMF30AIS & SMF30EIS

WIORESPV	DASD I/O Response Time	vector	SMF30AIC, AID & AIW
WCPUTM	Workload CPU Utilization	vector	SMF30CPT, CPS HPT, RCT, IIP, ISB & ICU
WPAGEV	Workload Paging	vector	SMF30PGI, PGO, PSI, PSO, VPI, VPO, CPI, HPI, LPI & HPO
WCSV	Workload Central Storage	vector	SMF30PRV & SYS
WESV	Workload Expanded Storage	vector	SMF70ERS
WEXCPV	Workload EXCP Count	vector	SMF30TEP
WIFAV	Workload zAAP time in seconds	Vector	SMF30_TIME_ON_IFA & ENCLAVE & DEP_ENCLAVE
WIFACPV	Workload time on CP that could have executed on zAAP in seconds	Vector	SMF30_TIME_IFA_ON_CP & ENCLAVE & DEP_ENCLAVE

4.12 WSDN Section -- Workload type 42

DSDD	Read only disconnect	num	S42DSRDD
DSDT	Read rate	num	S42DSRDT (total number of Read/IOs)
ROD	Intensity	Num	Product of DSDD and DSDT
WDSNV	VOLSER	Char	S42DSVOL
WDSNN	Data set name	Char	S42DSN
WDR	I/O Rate	num	S42DSION
WDHR	Hot spot rate	num	S42DSION
WDHRT	Hot spot response time	num	S42SIOR
WDC	Connect time	num	S42DSIOC
WDD	Disconnect time	num	S42DSIOD
WDP	Pend time	num	S42DSIOP
WDRT	Response Time	num	S42DSIOR
NRDT	zHyperLink I/O Read Attempts	Num	S42SNRDT
NROS	zHyperLink I/O Read Successes	Num	S42SNROS
NWTT	zHyperLink I/O Write Attempts	Num	S42SNWTT
NWOS	zHyperLink I/O Write Successes	Num	S42SNWOS

NMWR	zHyperLink Max Resp Reads (ms)	Num	S42SNMWR
NMXW	zHyperLink Max Resp Writes (ms)	Num	S42SNMXW
NRDU	zHyperLink Avg Read Resp (ms)	Num	S42SNRDU
NWTU	zHyperLink Avg Write Resp (ms)	Num	S42SNWTU

4.13 CF Section -- Coupling Facility

HPTSID	Parallel Sysplex name	Char	SMF70XNM, only if SMF 74 subtype 4 (CF) records are present.
CFNAME	Coupling Facility name	Char	R744FNAM
CFTYPE	Coupling Facility Device	Char	User Parm or R744FMOD & R744FVER
CFSTOR	Total Storage	num MB	R744GTSD
CFDMPSTOR	Dump Storage	num MB	R744GDSA
CFSTORAV	Available Storage	num MB	R744GTSF
CFREQ	Coupling Facility requests per second	num 2 dec	R744FTOR
FSCCV	Subchannel contention	vector	R744FSCC divided by R744FTOR times 100
FPBCV	Request failure count	vector	R744FPBC
CFLINKS	Number of subchannels currently in use	num	R744FSCU
CFUT	CPU Utilization of the CF	vector	R744PBSY
CFPWGT	CF Partition weight	num	0= record is downlevel, -1=dedicated, any other value = weight
EFFCP	Effective number of CPUs	vector	R744PBSY+R744PWAI
CFREQV	Coupling Facility requests per second	vector	R744FTOR
CFNCPS	Number of processors in the CF	num	SMF744PN
FLVL	Coupling Facility Level	num	R744FLVL

DYNDISP	Dynamic Dispatching	num	0: R744FLVL <= 14, 2: R744FLVL >14 and R744FFLG x'10' bit is off, 3: R744FLVL >14 and R744FFLG x'10' bit is on
FPSNV	# shared processors	Vector	R744FPSN
FPDNV	# dedicated processors	Vector	R744FPDN
CFSYSN	Names of systems connected to this CF	vector	R744XSYS
PEER	Name of peer CF	Char	R744RNAM
PRSR	Serial of peer CF	hex	R744RNDE
PRTYPE	Type of peer CF	char	R744RNDE
FPAM	Path available	num	R744FPAM
FSCL	Number of subchannels that can be used (limit)	num	R744FSCL
RTAP	CHPID acronyms	Vector	R744RTAP
FTAP	CHPID acronyms	Vector	R744FTAP
SR	Seq num of CF	Char	R744FSEQ
LPN	Log part num	Num	R744FLPN (x'6F')
FPCM	Composite path mask	Hex	R744FPCM
FIDP	List of up to 8 ChpIDs	Hex	R744FIDP

4.14 CFS Section -- Coupling Facility Structure

STRNAME	CF Structure Name	Char	R744SNAM
STRTYPE	CF Structure type	Char	R744STYP 'LIST', 'LOCK', 'CACH'
STRSIZE	Storage Allocated to this Structure	num MB	R744SSIZ
FLG	Duplex primary or secondary	num	R744QFLG, 0=not duplex, 1= secondary, 2= primary
FLG1	Asynchronous duplexing is enabled	boolean	R744QFL1
FLG2	Hex value of the R744SFLG bits	Hex	R744SFLG
FLG3	If set (1), No CF FW stats available (optimized CF HW data gathering was active)	boolean	R744FFLG

4.15 CFL Section -- Channel Path Structure Entry

Information from the Channel Path Data section for each CHPID listed in the Local Coupling Facility Data section.

HCPI	Channel path Identifier	Hex (2)	R744HCPI
HFLG	Validity bit mask	Hex (4)	R744HFLA
HOPM	Channel path operation mode	Hex (2)	R744HOPM
HPCP	Physical channel ID (PCHID)	Hex (4)	R744HPCP
HAID	Host channel adapter ID	Hex (4)	R744HAID
HAPN	Host channel adapter port nbr.	Hex (2)	R744HAPN
HCHF	Status flags	Vector	R744HCHF
HLAT	Channel path latency time	Vector	R744HLAT

4.16 CFE Section -- Coupling Facility Structure Entry

For each Coupling Facility Structure there will be an entry for each connected system.

SYS	SYSID of connected system	Char	SMF74SID
AREQV	Asynchronous Requests per second	vector	R744SARC
ASRVV	Asynchronous Requests average service time in microseconds	vector	R744SATM divided by R744SARC
SREQV	Synchronous Requests per second	vector	R744SSRC
SSRVV	Synchronous Requests average service time in microseconds	vector	R744SSTM / R744SSRC
SQV	Number of requests queued per second	vector	R744SQRC
SQTMV	Average time queued in microseconds	vector	R744SQTM / R744SQRC
SCNV	Lock contention	vector	R744SCN / Interval Sec
SFCNV	False lock contention	vector	R744SFCN / Interval Sec
SSTAV	requests changed from SYNC to ASYNC	vector	R744SSTA / Interval Sec
SHTOV	requests waiting on high priority queue	vector	R744SHTO / Interval Sec
SLTOV	requests waiting on low priority queue	vector	R744SLTO / Interval Sec

STRCV	total requests to this structure from this system	vector	R744STRC / Interval Sec
SETMV	Structure execution time metric	vector	R744SETM / Interval Sec
SWDRV	Number of requests to write data to the CF structure	vector	R744SWDR
SWACV	Number of adjunct areas written to the CF structure	vector	R744SWAC
SRDRV	Number of requests to read data from the CF structure	vector	R744SRDR
SRACV	Number of adjunct areas read from the CF structure	vector	R744SRAC
SWECV	Number of data entries with data elements that have been written to the CF structure. Includes both single and multi entry write requests	vector	R744SWEC
SRECV	Number of data entries with data elements that have been read from the CF structure. Includes both single and multi entry read requests	vector	R744SREC
SWEDV	Sum of 256 byte increments accumulated for entry data with data elements written to the CF structure	vector	R744SWED
SREDV	Sum of 256 byte increments accumulated for entry data with data elements read from the CF structure	vector	R744SRED
SENCV	Set to 1 if R744SFLG x'02' bit is set indicating that structure data is encrypted	vector	value =0 or 1

4.17 DCM Section -- DCM channel for DASD

For each DCM channel there will be a complete section.

PID	Path ID	char	SMF78CPID
PTYPE	Channel Type	char	SMF73ACR C'P' parallel, C'E' ESCON, C'V' or C'F' for FICON
PBUSYV	Path Busy	vector	SMF73BSY
PBYV	Path Busy for this partition	vector	SMF73PBY / SMF73PTI

4.18 BCU Section -- Basic Configurable Unit for DASD

For each SYSID BCU there will be a complete description

BCUID	BCU identification	char	User Parm
CTYPE	CU type	char	User Parm or SMF74CU
CACHE	Cache Size	num	User Parm or CSCONF in CRR record
NVS	Non Volatile Storage size	num	User Parm or CNCONF in CRR record
NOAD	number of addresses under this BCU	num	From BCU map (May include offline volumes for which there will be no ACT section.)
BCUDASDi	type of DASD	char	User input or SMF74DEV
BCUDASDNi	number of this type	num	computed

BCUIO	Total I/O Rate	num	SMF74SSC
BCURESP	Average Response Time	num	computed
BCUSLO	Service level objective	num	Maximum response time for devices with an I/O rate > 1
BCUCONN	Average connect time for BCU	num	SMF74CNN
BCUDISC	Average disconnect time for BCU	num	SMF74DIS
BCUPEND	Average disconnect time for PEND	num	SMF74PEN
BCUQUE	Average IOS queue time	num	SMF74QUE
BCUSKEW	Maximum device busy to average.	num	computed
BCUIOV	Total I/O Rate	Vector	SMF74SSC
BCURESPV	Average Response Time	Vector	computed
BCUCONNV	Average connect time for BCU	Vector	SMF74CNN
BCUDISCV	Average disconnect time for BCU	Vector	SMF74DIS
BCUPENDV	Average pend time for BCU	Vector	SMF74PEN
BCUQUEV	Average IOS queue time	Vector	SMF74QUE
BCURDRT	Read Rate	Vector	(R745DRCR +R745DRSR +R745DRNR) / Interval Seconds
BCUWRRT	Write Rate	Vector	(R745DWRC +R745DWSR R745DWNR) / Interval Seconds
BCURDBR	Read bytes per request	Vector	R7451CT1 *128 *1024 / (R745DRCR +R745DRSR R745DRNR)
BCUWRBR	Write bytes per request	Vector	(R7451CT2 *128 *1024 / (R745DWRC +R745DWSR +R745DWNR)

BCUR	Read Write Ratio for entire BCU. (All devices cached or not.)	num	CRR: "Total (Cache) R/W Ratio"
BCUH	Read Hit Ratio for entire BCU. (All devices cached or not.)	num	CRR: "Total Read H/R"
BCUW	Fast Write Hit Ratio for entire BCU. (All devices cached or not.)	num	CRR: "Total F/W H/R"
BCUG	Sequential Stage Ratio for entire BCU. (All devices cached or not.)	num	CRR: "DASD to Cache Transfers - Sequential" divided by "Total I/O Requests"
BCUC	Percent of I/Os eligible to be cached for entire BCU.	num	CRR: "Total Cacheable I/Os" divided by "Total I/O Requests" times 100
BCUF	Percent Fast Write Destages for entire BCU. (All devices cached or not.)	num	CRR: "Cache to DASD Transfers - Total" divided by "Total I/O" times 100
BCUK	Percent Count Key Data Writes for entire BCU. (All devices cached or not.)	num	CRR: "Count Key Data Writes" divided by "Total I/O" times 100 (Not supported with CRR 1.4)
BCUD	Count Key Data Write Hit Ratio for entire BCU. (All devices cached or not.)	num	CRR: "Count Key Data Write Hits" divided by "Count Key Data Writes" (Not supported with CRR 1.4)
BCUB	Cache Fast Write Bypass	num	CRR: “Cache Fast Write Bypass” divided by “Total I/O” times 100

BCURV	Read Write Ratio for entire BCU. (All devices cached or not.)	Vector	CRR: "Total (Cache) R/W Ratio"
BCUHV	Read Hit Ratio for entire BCU. (All devices cached or not.)	Vector	CRR: "Total Read H/R"
BCUWV	Fast Write Hit Ratio for entire BCU. (All devices cached or not.)	Vector	CRR: "Total F/W H/R"
BCUGV	Sequential Stage Ratio for entire BCU. (All devices cached or not.)	Vector	CRR: "DASD to Cache Transfers - Sequential" divided by "Total I/O Requests"
BCUCV	Percent of I/Os eligible to be cached for entire BCU.	Vector	CRR: "Total Cacheable I/Os" divided by "Total I/O Requests" times 100
BCUFV	Percent Fast Write Destages for entire BCU. (All devices cached or not.)	Vector	CRR: "Cache to DASD Transfers - Total" divided by "Total I/O" times 100
BCUKV	Percent Count Key Data Writes for entire BCU. (All devices cached or not.)	Vector	CRR: "Count Key Data Writes" divided by "Total I/O" times 100.
BCUDV	Count Key Data Write Hit Ratio for entire BCU. (All devices cached or not.)	Vector	CRR: "Count Key Data Write Hits" divided by "Count Key Data Writes"
BCUBV	Cache Fast Write Bypass	Vector	CRR: “Cache Fast Write Bypass” divided by “Total I/O” times 100

MFR	CU Manufacturer	Char	SMF74DCT
BCUSER	Serial number from the NED data	num	SMF74DCT
ERBi	ECKD read activity in thousands of bytes/sec	Vector	R748LERB with i as index= R748LTYP
EWBi	ECKD write activity in thousands of bytes/sec	Vector	R748LEWB
EROi	ECKD read ops/sec	Vector	R748LERO
ERTi	ECKD Read time in MS/sec	Vector	R748LERT
EWTi	ECKD Write time/sec	Vector	R748LEWT
PSBi	PPRC Send activity in thousands of bytes/sec	Vector	R748LPSB
PRBi	PPRC Receive activity in thousands of bytes/sec	Vector	R748LPRB
PSOi	Send ops/sec	Vector	R748LPSO
PROi	Receive ops/sec	Vector	R748LPRO
PSTi	Send time in MS/sec	Vector	R748LPST
SRBi	SCSI read activity in thousands of bytes/sec	Vector	R748LSRB
SWBi	SCSI write activity in thousands of bytes/sec	Vector	R748LSWB
SROi	SCSI Read Ops/sec	Vector	R748LSRO
SWOi	SCSI Write Ops/sec	Vector	R748LSWO
SRTi	SCSI Read Time in Ms/sec	Vector	R748LSRT
SWTi	SCSI Write Time in Ms/sec	Vector	R748LSWT
ZHLIIDn	The Interface ID (There may be multiples, n=1,2,3…)	Hex	R748SIID
ZHLGENn	The Generation (n matches ZHLIIDn)	Num	R748SSPD
ZHLANEn	Number of Lanes (n matches ZHLIIDn)	Num	R748SWDH
ZHLBRn	zHyperLink bytes read in Mb/Sec	Vector	R748SCBR
ZHLROn	zHyperLink total read operations / Sec	Vector	R748SCRO
ZHLSRn	zHyperLink successful read operations / Sec	Vector	R748SCRS
ZHLRTn	zHyperLink read accumulated time in milliseconds / Sec	Vector	R748SCRT

ZHLBWn	zHperLink bytes written in Mb/Sec	Vector	R748SCBW
ZHLWOn	zHyperLink total write operations / Sec	Vector	R748SCWO
ZHLSWn	zHyperLink successful write operations / Sec	Vector	R748SCWS
ZHLWTn	zHyperLink write accumulated time in milliseconds / Sec	Vector	R748SCWT
BCUIDT	Interrupt Delay Time	Vector	SMF74IDT Reported in Milliseconds 3 decimals.
BSYNBR	Synchronous MegaBytes / second	Vector	SMF74SBR 3 decimals
BSYNBW	Synchronous MegaBytes / second	Vector	SMF74SBW 3 decimals
BSYNRR	Synchronous Successful Read Req / Second	Vector	SMF74SQR 3 decimals
BSYNWR	Synchronous Successful Write Req / Second	Vector	SMF74SQW 3 decimals
BSYNPR	Synchronous Read Request Time	Vector	SMF74SPR Reported in Milliseconds 3 decimals
BSYNPW	Synchronous Write Requests Time	Vector	SMF74SPW Reported in Milliseconds 3 decimals
BSFTR	Synchronous Read Elapsed Time (CPU Time then Ficon I/O)	Vector	SMF74SFTR Reported in Milliseconds 3 decimals
BSFTW	Synchronous Write Elapsed Time (CPU Time then Ficon I/O)	Vector	SMF74SFTW Reported in Milliseconds 3 decimals
BSYNIOQ	I/O queue time	Vector	SMF74IOS Reported in MICROseconds 1 decimal
BSYNRE	Synchronous Read Failures / Second	Vector	SMF74SLBR + SMF74STOR + SMF74SOR
BSYNWE	Synchronous Write Failures / Second	Vector	SMF74SLBW + SMF74STOW + SMF74SOW
BSYNRCM	Synchronous Read Cache Failures / Second	Vector	SMF74SCMR
BSYNWCM	Synchronous Write Cache Failures / Second	Vector	SMF74SNIS

4.19 PATH Section -- BCU Path Data

FOE	Ficon operations	Vector	SMF73EOS
HOE	Ficon transports	Vector	SMF73ETS
PID	Path ID (if P* then DCM and only the PIOV will be present)	char chpid	SMF78CPID

PTYPE	Channel Type	Char	SMF73ACR C'P' parallel, C'E' ESCON, C'V' or C'F' for FICON
SPEED	Channel speed in megabits/second	Vector	SMF73SPD and SMF73MSC
SHR	Channel path is shared between partitions	Boolean	SMF73SHR (bit 7 of SMF73FG3)
PSW	Escon Director	Number	From the BCUMAP (IOCP input)
PLK	Link on Escon Director	Number	From the BCUMAP (IOCP input)
PCHID	Physical channel ID	Number	R744HPCP
OFFL	Offline	num (0 or 1)	If no RMF data for path, assumed offline
CL	FICON Chpid Level	1.0, 1.5, or 1.75	9672 is 1.0, 2064 is 1.5 or 1.75 (SMF73MBC > 40,000 is 1.75), 2066 & later 1.75
GEN	Type Generation	Number	SMF73GEN
PBUSYV	Path Busy	vector	SMF73BSY
PBYV	Path Busy for this partition	vector	SMF73PBY / SMF73PTI
PIOV	Chpid taken	vector	R783PT
PBBY	Ficon Bus Busy	vector	SMF73TBC and SMF73MBC
PTRD	Ficon Total read MB/Sec	vector	SMF73TRU and SMF73US
PTWR	Ficon Total write MB/Sec	vector	SMF73TWU and SMF73US
PLRD	Ficon LPAR read MB/Sec	vector	SMF73PRU and SMF73US
PLWR	Ficon LPAR write MB/Sec	vector	SMF73PWU and SMF73US
FRATE	Ficon command mode ops	vector	SMF73EOC
HRATE	Ficon transport mode ops	vector	SMF73ETC
FDEFER	Ficon command-mode ops deferred	vector	SMF73EOD
HDEFER	FICON transport-mode ops deferred	vector	SMF73ETD

4.20 ACT Section - Actuators

Detail needed for performance analysis

V	Volser	char	SMF74SER
A	Address	char	SMF74NUM
T	DASD Type	char	User Parm or SMF74DEV
R	I/O Rate	num	SMF74SSC
SDS	Standard deviation for service	num	calc
Q	IOSQ	num	calc
P	PEND	num	SMF74PEN
D	DISC	num	SMF74DIS
C	CONN	num	SMF74CNN
SG	Storage Group	char	SMF74SGN
DS	Total Number of Allocations in Effect for the Device	num	SMF74NDA
SDR	Standard deviation for response	num	calc
RWR	Read Write Ratio	num	CRR: "Total (Cache) R/W Ratio" VolReads/VolWrites VolReads = R745DRCR+R745DRSR+R745DRNR (Search Reads, Read Seq, Search Read Non Retentive) VolWrites = R745DWRC+R745DWSR+R745DWNR (Write caching, Write Seq, Write Non Retentive.)
RDHT	Read Hit Ratio	num	CRR: "Total Read H/R" VolRHits / VolReads VolRHits = R745DCRH+R745DRSH+R745DNRH (Search Read Cache Hit, Read Seq Hit, Search Read Non Retentive Hit.)
FWHT	Fast Write Hit Ratio	num	CRR: "Total F/W H/R" VolWHits / VolWrites VolWhits = R745DWCH+R745DWSH+R745DWNH (Write Cache Req Hit, Write Seq Hit, Write Non Retentive Hits.)

SQSTG	Sequential Stage Ratio	num	CRR: "DASD to Cache Transfers - Sequential" divided by "Total I/O Requests" R745DTC / (R745BPCR+R745ICLR+VolReads+VolWrites)
PC	Percent Cached	num	CRR: "Total Cachable I/Os" divided by "Total I/O Requests" times 100 VolReads+VolWrites / (R745BPCR+R745ICLR+VolReads+VolWrites)
PFWD	Percent Fast Write Destages	num	CRR: "Cache to DASD Transfers - Total" divided by "Total I/O" times 100 R745DCTD / (R745BPCR+R745ICLR+VolReads+VolWrites)
PCW	Percent Count Key Data Writes	num	CRR: "Count Key Data Writes" divided by "Total I/O" times 100 R745DKDW / (R745BPCR+R745ICLR+VolReads+VolWrites)
CWH	Count Key Data Write Hit Ratio	num	CRR: "Count Key Data Write Hits" divided by "Count Key Data Writes" R745DKDH / R745DKDW
CFWB	Cache Fast Write Bypass	num	CRR: “Cache Fast Write Bypass” divided by “Total I/O” times 100 R745DFWR / (R745BPCR+R745ICLR+VolReads+VolWrites)
ST	Actuator Status	char	CRR: "Device Status": N - Caching Activated, DASD FW Allowed, D - Caching Deactivated, DASD FW Deactivated, C - Caching Activated, DASD FW Deactivated, F - Caching Deactivated, DASD FW Allowed.
IDT	Interrupt Delay Time	num	SMF74IDT Reported in Milliseconds 3 decimals.
SYNBR	Synchronous MegaBytes Read / Second	Num	SMF74SBR 3 decimals
SYNBW	Synchronous MegaBytes Written / Second	Num	SMF74SBW 3 decimals

SYNRR	Synchronous Successful Read Req / Second	Num	SMF74SQR 3 decimals
SYNWR	Synchronous Successful Write Req / Second	Num	SMF74SQW 3 decimals
SYNPR	Synchronous Read Req Time	Num	SMF74SPR In Milliseconds 3 decimals
SYNPW	Synchronous Write Req Time	Num	SMF74SPW In Milliseconds 3 decimals
SFTR	Synchronous Read Elapsed Time (CPU Time then Ficon I/O)	Num	SMF74SFTR In Milliseconds 3 decimals
SFTW	Synchronous Write Elapse Time (CPU Time then Ficon I/O)	Num	SMF74SFTW In Milliseconds 3 decimals
SYNIOQ	I/O Queue Time	Num	SMF74IOS In MICROseconds 1 decimal
SYNRE	Synchronous Read Failures / Second	Num	SMF74SLBR + SMF74STOR + SMF74SOR 3 decimals
SYNWE	Synchronous Write Failures / Second	Num	SMF74SLBW + SMF74STOW + SFM74SOW 3 decimals
SYNRCM	Synchronous Read Cache Misses / Second	Num	SMF74SCMR
SYNWCM	Synchronous Write Cache Misses / Second	Num	SMF74SNIS

4.21 BCUT Section -- Basic Configurable Unit for Tape

BCUID	BCU identification	char	User Parm
CTYPE	CU type	char	User Parm or SMF74CU
CACHE	Cache Size	num	User Parm or 0
NVS	Non Volatile Storage size	num	User Parm or CNCONF in CRR record
AAD	Number of active addresses	num	Number of addresses on this BCU with RMF data
NOAD	number of addresses under this BCU	num	From BCU map (May include offline volumes that have no ACT section).

BCUTAPEi	type of Tape Device	char	User input or SMF74DEV
BCUTAPENi	number of this type	num	computed
BCUIOV	I/O Rate this BCU	Vector	SMF74SSC
ALLOCV	Average Allocation Time in seconds	Vector	computed from SMF74ALC + SAM
MOUNTV	Number of Mounts for this BCU	Vector	computed from SMF74MTC
DELAYV	Average Wait for mount in seconds	Vector	computed from SMF74MTP + SAM + MCT
CONNV	Total Connect time for this BCU in seconds	Vector	computed from SMF74CNN
DISCV	Total Disconnect time for this BCU in seconds	Vector	computed from SMF74DIS

4.22 PTHT Section -- Same content as PATH, above

4.23 BCUO Section -- Basic Configurable Unit for Other

BCUO	Basic Configurable Unit for Other		
BCUID	BCU identification	char	User Parm
CTYPE	CU type	char	User Parm or SMF74CU
CACHE	Cache Size	num	User Parm or 0
NVS	Non Volatile Storage size	num	User Parm or CNCONF in CRR record
NOAD	number of addresses under this BCU	num	From BCU map (May include offline volumes that have no ACT section).
PTHO	See PATH above		

4.24 PTHO Section -- Same content as PATH, above