

HH	HH	EEEEEEEEE	RRRRRRRRR	CCCCCCCC	00000000	11	AAAAAAA
HH	HH	EEEEEEEEE	RRRRRRRRRR	CCCCCCCCCC	000000000	111	AAAAAA
HH	HH	EE	RR	RR CC	00 00	1111	AA AA
HH	HH	EE	RR	RR CC	00 00	11	AA AA
HH	HH	EE	RR	RR CC	00 00	11	AA AA
HH	HH	EEEEE	RRRRRRRRR	CC	00 00	11	AAAAAA
HH	HH	EEEEE	RRRRRRRRR	CC	00 00	11	AAAAAA
HH	HH	EE	RR	RR CC	00 00	11	AA AA
HH	HH	EE	RR	RR CC	00 00	11	AA AA
HH	HH	EE	RR	RR CC	00 00	11	AA AA
HH	HH	EEEEE	RR	RR CC	00 00	11	AA AA
HH	HH	EEEEE	RR	RR CC	000000000	111111111	AA AA
HH	HH	EEEEE	RR	RR CC	000000000	111111111	AA AA

JJ	OO	000000000000	BBBBBBBBBB	44	555555555555	000000000
JJ	OO	000000000000	BBBBBBBBBB	444	555555555555	000000000
JJ	OO	00 BB	BB BB	4444	55	00 00
JJ	OO	00 BB	BB BB	44	55	00 00
JJ	OO	00 BB	BB BB	44	55	00 00
JJ	OO	00 BBBB BBBB	BBB BBBB	44	555555555555	00 00
JJ	OO	00 BBBB BBBB	BBB BBBB	44	555555555555	00 00
JJ	OO	00 BBBB BBBB	BBB BBBB	44	555555555555	00 00
JJ	OO	00 BBBB BBBB	BBB BBBB	44	555555555555	00 00
JJ	OO	00 BBBB BBBB	BBB BBBB	444444444444	55	00 00
JJ	OO	00 BBBB BBBB	BBB BBBB	444444444444	55	00 00
JJJJJJJJJJJJJ	OO	000000000000	BBBBBBBBBB	44	555555555555	000000000
JJJJJJJJJJJJJ	OO	000000000000	BBBBBBBBBB	44	555555555555	000000000

PPPPPPPPPP	RRRRRRRRR	00000000	00000000	EEEEEEEEE
PPPPPPPPPP	RRRRRRRRRR	000000000	000000000	EEEEEEEEE
PP	PP	RR 00	00 00	00 EE
PP	PP	RR 00	00 00	00 EE
PP	PP	RR 00	00 00	00 EE
PPPPPPPPPP	RRRRRRRRRRR	00	00 00	00 EEEEEE
PPPPPPPPPP	RRRRRRRRRRR	00	00 00	00 EEEEEE
PPPPPPPPPP	RRRRRRRRRRR	00	00 00	00 EEEEEE
PP	RR	RR 00	00 00	00 EE
PP	RR	RR 00	00 00	00 EE
PP	RR	RR 00	00 00	00 EE
PP	RR	RR 0000000000	0000000000	EEEEEEEEE
PP	RR	RR 00000000	00000000	EEEEEEEEE

PPPPPPPPPP	RRRRRRRRR	TTTTTTTTTT	11	44	00000000	3333333333
PPPPPPPPPP	RRRRRRRRRR	TTTTTTTTTT	111	444	0000000000	33333333333
PP	PP	RR RR	TT 1111	4444	00 00	33 33
PP	PP	RR RR	TT 11	44	00 00	33
PP	PP	RR RR	TT 11	44	00 00	33
PPPPPPPPPP	RRRRRRRRRR	TT 11	44	00 00	00 00	3333
PPPPPPPPPP	RRRRRRRRRR	TT 11	44	00 00	00 00	3333
PP	RR	RR TT	11	444444444444	00 00	33
PP	RR	RR TT	11	444444444444	00 00	33
PP	RR	RR TT	11	44	00 00	33 33
PP	RR	RR TT	1111111111	44	0000000000	333333333333
PP	RR	RR TT	1111111111	44	0000000000	333333333333

JJ	EEEEEEEEE	SSSSSSSS	MM	MM	SSSSSSSS	GGGGGGGGG
JJ	EEEEEEEEE	SSSSSSSSSS	MMM	MM	SSSSSSSSSS	GGGGGGGGGGG
JJ	EE	SS	SS	MMMM	MM	GG
JJ	EE	SS	MM	MM	SS	GG
JJ	EE	SSS	MM	MM	SSS	GG
JJ	EEEEE	SSSSSSSS	MM	MM	SSSSSSSS	GG
JJ	EEEEE	SSSSSSSS	MM	MM	SSSSSSSS	GG
JJ	EE	SSS	MM	MM	SSS	GG
JJ	EE	SS	MM	MM	SS	GG
JJ	JJ	EE	SS	SS	MM	MM
JJJJJJJJJJJJJ	EEEEEEEEE	SSSSSSSSSS	MM	MM	SSSSSSSSSS	GGGGGGGGGG
JJJJJJJJJJJ	EEEEEEEEE	SSSSSSSSSS	MM	MM	SSSSSSSSSS	GGGGGGGGGG

AAAAAA	00000000		
AAAAAAA	0000000000		
AA	AA	00	00
AA	AA	00	00
AA	AA	00	00
AAAAAA	00	00	
AAAAAA	00	00	
AA	AA	00	00
AA	AA	00	00
AA	AA	00	00
AA	AA	00	00
AA	AA	0000000000	
AA	AA	0000000000	

IAT6140 JOB ORIGIN FROM GROUP=ANYLOCAL, DSP=IR , DEVICE=INTRDR , 000
01:02:32 IAT4401 LOCATE FOR STEP=ASM DD=SYSLIB DSN=SYS1.MACLIB
01:02:32 IAT4402 UNIT=3350 ,VOL(S) N/A: UNIT NOT JES3
01:02:32 IAT4401 LOCATE FOR STEP=ASM DD=SYSLIB DSN=SYS2.MACLIB
01:02:32 IAT4402 UNIT=3350 ,VOL(S) N/A: UNIT NOT JES3
01:02:32 IAT4401 LOCATE FOR STEP=ASM DD=SYSLIB DSN=SYS1.MACLIB
01:02:32 IAT4402 UNIT=3350 ,VOL(S) N/A: UNIT NOT JES3
01:02:32 IAT4401 LOCATE FOR STEP=ASM DD=SYSLIB DSN=SYS1.MACLIB
01:02:32 IAT4402 UNIT=3350 ,VOL(S) N/A: UNIT NOT JES3
01:02:33 IAT2000 JOB 0450 HERC01A SELECTED TK4A GRP=JS3BATCH
01:02:33 IEF403I HERC01A - STARTED - TIME=01.02.33
01:02:33 IEFACTRT - Stepname Procstep Program Retcode
01:02:33 HERC01A PRIMES ASM IFOX00 RC= 0000
01:02:33 + 9592 primes up to 99999 found
01:02:33 HERC01A PRIMES GO LOADER RC= 0000
01:02:33 IEF404I HERC01A - ENDED - TIME=01.02.33

JJ	EEEEEEEEE	SSSSSSSS	JJ	CCCCCCCC	LL
JJ	EEEEEEEEE	SSSSSSSSSS	JJ	CCCCCCCCCCC	LL
JJ	EE	SS SS	JJ	CC CC	LL
JJ	EE	SS	JJ	CC	LL
JJ	EE	SSS	JJ	CC	LL
JJ	EEEEE	SSSSSS	JJ	CC	LL
JJ	EEEEE	SSSSSS	JJ	CC	LL
JJ	EE	SSS	JJ	CC	LL
JJ	EE	SS JJ	JJ	CC CC	LL
JJ	JJ	EE SS JJ	JJ	CC CC	LL
JJJJJJJJJJJJJ	EEEEEEEEE	SSSSSSSSSS	JJJJJJJJJJJJJ	CCCCCCCCCCC	LLLLLLLLLLL
JJJJJJJJJJJ	EEEEEEEEE	SSSSSSSS	JJJJJJJJJJJ	CCCCCCCCC	LLLLLLLLLLL

AAAAAA	00000000
AAAAAAA	0000000000
AA AA	00 00
AA AA	00 00
AAAAAAA	00 00
AAAAAAA	00 00
AA AA	0000000000
AA AA	000000000

```

//HERC01A JOB (BAL),                                     *
//          'ASSEMBLER FX PRIME',                      *
//          CLASS=A,                                     *
//          MSGCLASS=A,                                    *
//          TIME=1440,                                     *
//          MSGLEVEL=(1,1),                                *
//          USER=HERC01,PASSWORD=                         GENERATED BY GDL
//*****
//*
// * Name: SYS2.JCLLIB(PRIMASM)
// *
// * Desc: Sieve of Eratosthenes programmed in Basic Assembler Language
// *       All prime numbers up to the value entered via PARM.GO
// *       are computed.
// *
//*****
//PRIMES EXEC ASMFCG,PARM.ASM=(OBJ,NODECK),MAC1='SYS2.MACLIB',
//        REGION.GO=928K,PARM.GO='/99999'
//ASM.SYSIN DD *
/*
//GO.SYSPRINT DD SYSOUT=*
1   //HERC01A JOB (BAL),                                     *
//          'ASSEMBLER FX PRIME',                      *
//          CLASS=A,                                     *
//          MSGCLASS=A,                                    *
//          TIME=1440,                                     *
//          MSGLEVEL=(1,1),                                *
//          USER=HERC01,PASSWORD=                         GENERATED BY GDL
*****  

***  

*** Name: SYS2.JCLLIB(PRIMASM)  

***  

*** Desc: Sieve of Eratosthenes programmed in Basic Assembler Language  

***       All prime numbers up to the value entered via PARM.GO  

***       are computed.  

***  

*****  

2   //PRIMES EXEC ASMFCG,PARM.ASM=(OBJ,NODECK),MAC1='SYS2.MACLIB',
//        REGION.GO=928K,PARM.GO='/99999'  

3   XXASMFCG  PROC MAC='SYS1.MACLIB',MAC1='SYS1.MACLIB',      00000100
      XX      MAC2='SYS1.MACLIB',MAC3='SYS1.MACLIB',SOUT='*'    00000200
4   XXASM    EXEC PGM=IFOX00,PARM=OBJ,REGION=128K           00000300
5   XXSYSLIB  DD DSN=&MAC,DISP=SHR                     00000400
6   XX      DD DSN=&MAC1,DISP=SHR                   00000500
7   XX      DD DSN=&MAC2,DISP=SHR                   00000600
8   XX      DD DSN=&MAC3,DISP=SHR                   00000700
9   XXSYSUT1  DD DSN=&&SYSUT1,UNIT=SYSSQ,SPACE=(1700,(600,100)), 00000800
      XX      SEP=(SYSLIB)                           00000900
10  XXSYSUT2  DD DSN=&&SYSUT2,UNIT=SYSSQ,SPACE=(1700,(300,50)), 00001000
      XX      SEP=(SYSLIB,SYSUT1)                  00001100
11  XXSYSUT3  DD DSN=&&SYSUT3,UNIT=SYSSQ,SPACE=(1700,(300,50)) 00001200
12  XXSYSPRINT DD SYSOUT=&SOUT,DCB=BLKSIZE=1089        00001300
13  XXSYSPUNCH DD SYSOUT=B                         00001400
14  XXSYSGO   DD DSN=&&OBJSET,UNIT=SYSSQ,SPACE=(80,(200,50)), 00001500
      XX      DISP=(MOD,PASS)                    00001600
15  //ASM.SYSIN DD *,DCB=BLKSIZE=80
16  XXGO      EXEC PGM=LOADER,PARM='MAP,PRINT,NOCALL,LET',     00001700
      XX      COND=(8,LT,ASM)                   00001800
17  XXSYSLIN  DD DSN=&&OBJSET,DISP=(OLD,DELETE)        00001900
18  XXSYSLOUT  DD SYSOUT=&SOUT                   00002000
19  //GO.SYSPRINT DD SYSOUT=*

```

SSSSSSSSSS	YY	YY	SSSSSSSSSS	MM	MM	SSSSSSSSSS	GGGGGGGGGG		
SSSSSSSSSS	YY	YY	SSSSSSSSSS	MMM	MM	SSSSSSSSSS	GGGGGGGGGG		
SS	SS	YY	YY	SS	MMMM	MM	SS	GG	GG
SS		YY	YY	SS	MM	MM	SS	GG	
SSS		YYYY		SSS	MM	MM	SSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	
SSSSSSSS		YY		SSSSSSSS	MM	MM	SSSSSSSS	GG	

AAAAAA	AAAAAA	00000000
AAAAAA	AAAAAA	0000000000
AA	AA	00 00
AA	AA	00 00
AA	AA	00 00
AAAAAA	AAAAAA	00 00
AAAAAA	AAAAAA	00 00
AA	AA	0000000000
AA	AA	0000000000

STMT NO.	MESSAGE
-	
5	IEF653I SUBSTITUTION JCL - DSN=SYS1.MACLIB,DISP=SHR
6	IEF653I SUBSTITUTION JCL - DSN=SYS2.MACLIB,DISP=SHR
7	IEF653I SUBSTITUTION JCL - DSN=SYS1.MACLIB,DISP=SHR
8	IEF653I SUBSTITUTION JCL - DSN=SYS1.MACLIB,DISP=SHR
12	IEF653I SUBSTITUTION JCL - SYSOUT=*,DCB=BLKSIZE=1089
18	IEF653I SUBSTITUTION JCL - SYSOUT=*
IEF236I	ALLOC. FOR HERC01A ASM PRIMES
IEF237I	148 ALLOCATED TO SYSLIB
IEF237I	148 ALLOCATED TO
IEF237I	148 ALLOCATED TO
IEF237I	148 ALLOCATED TO
IEF237I	170 ALLOCATED TO SYSUT1
IEF237I	190 ALLOCATED TO SYSUT2
IEF237I	140 ALLOCATED TO SYSUT3
IEF237I	JES3 ALLOCATED TO SYSPRINT
IEF237I	JES3 ALLOCATED TO SYSPUNCH
IEF237I	180 ALLOCATED TO SYSGO
IEF237I	JES3 ALLOCATED TO SYSIN
IEF142I	HERC01A ASM PRIMES - STEP WAS EXECUTED - COND CODE 0000
IEF285I	SYS1.MACLIB KEPT *-----43
IEF285I	VOL SER NOS= MVSRES.
IEF285I	SYS2.MACLIB KEPT *-----0
IEF285I	VOL SER NOS= MVSRES.
IEF285I	SYS1.MACLIB KEPT *-----0
IEF285I	VOL SER NOS= MVSRES.
IEF285I	SYS1.MACLIB KEPT *-----0
IEF285I	VOL SER NOS= MVSRES.
IEF285I	SYS16261.T010232.RA000.HERC01A.SYSUT1 DELETED *-----243
IEF285I	VOL SER NOS= WORK01.
IEF285I	SYS16261.T010232.RA000.HERC01A.SYSUT2 DELETED *-----43
IEF285I	VOL SER NOS= WORK03.
IEF285I	SYS16261.T010232.RA000.HERC01A.SYSUT3 DELETED *-----10
IEF285I	VOL SER NOS= WORK00.
IEF285I	ASM.PRIMES.SYSPRINT SYSOUT
IEF285I	ASM.PRIMES.SYSPUNCH SYSOUT
IEF285I	SYS16261.T010232.RA000.HERC01A.OBJSET PASSED *-----23
IEF285I	VOL SER NOS= WORK02.
IEF285I	JES10001 SYSIN
IEF373I	STEP /ASM / START 16261.0102
IEF374I	STEP /ASM / STOP 16261.0102 CPU 0MIN 00.20SEC SRB 0MIN 00.02SEC VIRT 128K SYS 160K
*	1. Jobstep of job: HERC01A Stepname: ASM Program name: IFOX00 Executed on 17.09.16 from 01.02.33 to 01.02.33 *
*	elapsed time 00:00:00,28 CPU-Identifier: TK4- Page-in: 0 *
*	CPU time 00:00:00,22 Virtual Storage used: 128K Page-out: 0 *
*	corr. CPU: 00:00:00,22 CPU time has been corrected by 1 / 1,0 multiplier *
*	I/O Operation *
*	Number of records read via DD * or DD DATA: 284 *
*	148.....43 148.....0 148.....0 148.....0 170.....243 190.....43 140.....10 DMY.....0 DMY.....0 180.....23 *
*	DMY.....0 *
*	Charge for step (w/o SYSOUT): 0,36 *
IEF236I	ALLOC. FOR HERC01A GO PRIMES
IEF237I	180 ALLOCATED TO SYSLIN
IEF237I	JES3 ALLOCATED TO SYSLOUT
IEF237I	JES3 ALLOCATED TO SYSPRINT
	9592 primes up to 99999 found
IEF142I	HERC01A GO PRIMES - STEP WAS EXECUTED - COND CODE 0000
IEF285I	SYS16261.T010232.RA000.HERC01A.OBJSET DELETED *-----24
IEF285I	VOL SER NOS= WORK02.

IEF285I GO.PRIMES.SYSLOUT SYSOUT
IEF285I GO.PRIMES.SYSPRINT SYSOUT
IEF373I STEP /GO / START 16261.0102
IEF374I STEP /GO / STOP 16261.0102 CPU 0MIN 00.03SEC SRB 0MIN 00.00SEC VIRT 928K SYS 168K

* 2. Jobstep of job: HERC01A Stepname: GO Program name: LOADER Executed on 17.09.16 from 01.02.33 to 01.02.33 *
* elapsed time 00:00:00,04 CPU-Identifier: TK4- Page-in: 0 *
* CPU time 00:00:00,03 Virtual Storage used: 928K Page-out: 0 *
* corr. CPU: 00:00:00,03 CPU time has been corrected by 1 / 1,0 multiplier *
*
* I/O Operation *
* Number of records read via DD * or DD DATA: 0 *
* 180.....24 DMY.....0 DMY.....0 *
* Charge for step (w/o SYSOUT): 0,05 *

IEF375I JOB /HERC01A / START 16261.0102
IEF376I JOB /HERC01A / STOP 16261.0102 CPU 0MIN 00.23SEC SRB 0MIN 00.02SEC

AAAAAAA	SSSSSSSS	MM	MM				
AAAAAAAAAA	SSSSSSSSSS	MMM	MMM				
AA	AA	SS	SS	MMMM	MMMM		
AA	AA	SS		MM	MM	MM	MM
AA	AA	SSS		MM	MMMM	MM	
AAAAAAA	SSSSSSSS	MM	MM	MM			
AAAAAAA	SSSSSSSS	MM	MM				
AA	AA		SSS	MM	MM		
AA	AA		SS	MM	MM		
AA	AA	SS	SS	MM	MM		
AA	AA	SSSSSSSSSS		MM	MM		
AA	AA	SSSSSSSSSS		MM	MM		

PPPPPPPPPP	RRRRRRRRRR	IIIIIIIII	MM	MM	EEEEEEEEE	SSSSSSSSS		
PPPPPPPPPP	RRRRRRRRRR	IIIIIIIII	MMM	MM	EEEEEEEEE	SSSSSSSSSS		
PP	PP	RR	RR	II	MM	EE	SS	SS
PP	PP	RR	RR	II	MM	MM	EE	SS
PP	PP	RR	RR	II	MM	MM	EE	SSS
PPPPPPPPPP	RRRRRRRRRR	II	MM	MM	MM	EEEEEE	SSSSSSSS	
PPPPPPPPPP	RRRRRRRRRR	II	MM	MM	EE	SSSSSSSS		
PP	RR	RR	II	MM	MM	EE	SSS	
PP	RR	RR	II	MM	MM	EE	SS	
PP	RR	RR	II	MM	EE	SS	SS	
PP	RR	RR	II	MM	MM	EE	SS	SS
PP	RR	RR	II	MM	MM	EE	SS	SS

SSSSSSSSSS	YY	YY	SSSSSSSSSS	PPPPPPPPPPP	RRRRRRRRRRR	IIIIIIIII	NN	NN	TTTTTTTTTTT
SSSSSSSSSSSS	YY	YY	SSSSSSSSSSSS	PPPPPPPPPPPP	RRRRRRRRRRRR	IIIIIIIII	NNN	NN	TTTTTTTTTTT
SS	SS	YY	YY	SS	PP	RR	RR	II	NNNN
SS		YY	YY	SS	PP	RR	RR	II	NN NN
SSS		YYYY		SSS	PP	RR	RR	II	NN NN
SSSSSSSS		YY	SSSSSSSS	PPPPPPPPPPP	RRRRRRRRRRR	II	NN	NN	TT
SSSSSSSS		YY	SSSSSSSS	PPPPPPPPPPP	RRRRRRRRRRR	II	NN	NN	TT
	SSS	YY		SSS	PP	RR	RR	II	NN NN
	SS	YY		SS	PP	RR	RR	II	NNNN
SS	SS	YY	SS	SS	PP	RR	RR	II	NN NNN
SSSSSSSSSSSS		YY	SSSSSSSSSSSS	PP	RR	RR	IIIIIIIII	NN	NN
SSSSSSSSSS		YY	SSSSSSSSSS	PP	RR	RR	IIIIIIIII	NN	N

AAAAAAA AAAAAAA AA AA AA AAAAAAA	AA AA AA AA AA AAAAAAA	0000000 000000000 00 00 00 00 00 00 00 00
AAAAAAA AA AA	AA AA	00 00 00 00 00 00
AA AA	AA AA	00 00 000000000 000000000

SYMBOL TYPE ID ADDR LENGTH LDID

ASM 0201 01.02 09/17/16

PRIMASM SD 0001 000000 000450

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM	0201	01.02	09/17/16
2						*****		00020000		
3						***		00030000		
4						*** Program: PRIMASM		00040000		
5						***		00050000		
6						*** Purpose: Find all prime numbers up to a given limit		00060000		
7						*** using Eratosthenes' sieve algorithm.		00070000		
8						***		00080000		
9						*** Usage: The following JCL is required to run PRIMASM:		00090000		
10						***		00100000		
11						//PRIMASM EXEC PGM=PRIMASM,REGION=<size>,PARM=<limit>		00110000		
12						//STEPLIB DD DSN=<loadlib>,DISP=SHR		00120000		
13						//SYSPRINT DD SYSOUT=*		00130000		
14						***		00140000		
15						*** The parameters are defined as follows:		00150000		
16						***		00160000		
17						<limit> the largest number to sieve. All primes		00170000		
18						up to this number will be found. If the		00180000		
19						limit given is too high for the algorithm		00190000		
20						to execute within the bounds of the		00200000		
21						available virtual storage, <limit> will be		00210000		
22						adjusted to fit into the given region. If		00220000		
23						no PARM value is given, a default limit of		00230000		
24						2000 will be used.		00240000		
25						***		00250000		
26						<size> the amount of virtual storage the program		00260000		
27						is allowed to use. The program will always		00270000		
28						allocate the maximum amount of storage		00280000		
29						allowed by the REGION parameter. If no		00290000		
30						REGION parameter is specified, results will		00300000		
31						be unpredictable.		00310000		
32						***		00320000		
33						<loadlib> the load library containing the PRIMASM		00330000		
34						program.		00340000		
35						***		00350000		
36						*** Function: 1. Allocate all virtual storage available and adjust		00360000		
37						the sieve limit if necessary. This storage is		00370000		
38						used as flags, where each bit indicates whether		00380000		
39						the odd number corresponding to the bit's position		00390001		
40						is prime or not. Odd numbers are assigned to these		00394001		
41						bits in sequence, i.e. numbers 1,3,5,7,9,11,13,15		00398001		
42						correspond to bits 0,1,2,3,4,5,6,7 and so forth.		00402001		
43						***		00410000		
44						2. Set all prime flags to one, except the first.		00420001		
45						The first flag corresponds to the number one,		00425001		
46						which isn't prime. Note that there don't exist		00430001		
47						flags for even numbers, because even numbers		00435001		
48						(except the two) are never prime.		00440001		
49						***		00450000		
50						3. Run Eratosthenes' sieve which will result in		00460000		
51						clearing the prime flags of all none prime numbers		00470000		
52						up to the given limit.		00480000		
53						***		00490000		
54						4. Print all numbers having their prime flag set to		00500000		
55						SYSPRINT. The "irregular" two is printed manually		00510001		
56						for the sake of completeness.		00513001		

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM	0201	01.02	09/17/16
					57 ***				***	00520000	
					58 ***		5. Print a summary message indicating the number of		***	00530000	
					59 ***		primes found up to the given limit to SYSPRINT and		***	00540000	
					60 ***		to the job log.		***	00550000	
					61 ***				***	00560000	
					62 ***		6. Release the allocated storage.		***	00570000	
					63 ***				***	00580000	
					64 ***		7. Exit.		***	00590000	
					65 ***				***	00600000	
					66 ***	Updates:	2014/07/18 original implementation.		***	00610001	
					67 ***		2014/07/21 eliminate even numbers from prime flags.		***	00613001	
					68 ***				***	00620000	
					69 ***	Author:	Juergen Winkelmann, ETH Zuerich.		***	00630001	
					70 ***				***	00640000	
					71 *****				*****	00650000	
000000					72 PRIMASM	CSECT				00660000	
000000	47F0 F00C		0000C		73 SAVE	(14,12),,*	save registers			00670000	
000004	07				74+	B 12(0,15)		BRANCH AROUND ID		02150000	
000005	D7D9C9D4C1E2D4				75+	DC AL1(7)				02200000	
00000C	90EC D00C		0000C		76+	DC CL7'PRIMASM'		IDENTIFIER		02250000	
000010	18CF				77+	STM 14,12,12(13)		SAVE REGISTERS		02950000	
					78	LR R12,R15	establish module addressability			00680000	
000012	4120 C278		00278		79 USING	PRIMASM,R12	tell assembler of base			00690000	
000016	50D0 2004		00004		80 LA	R2,SAVEA	chain ..			00700000	
00001A	5020 D008		00008		81 ST	R13,4(,R2)	.. the ..			00710000	
00001E	18D2				82 ST	R2,8(,R13)	.. save ..			00720000	
					83 LR	R13,R2	.. areas			00730000	
					84 *					00740000	
					85 * Initialize sieve limit and virtual storage					00750000	
					86 *					00760000	
000020	5820 1000		00000		87 L	R2,0(,R1)	parameter list address			00770000	
000024	4810 2000		00000		88 LH	R1,0(,R2)	length of PARM field			00780000	
000028	1211				89 LTR	R1,R1	PARM field specified?			00790000	
00002A	4780 C058		00058		90 BZ	NOPARM	no, use default sieve limit			00800000	
00002E	5830 C2D8		002D8		91 L	R3,HIGHLIM	maximum PARM allowed			00810000	
000032	4140 000A		0000A		92 LA	R4,10	maximum PARM length allowed			00820000	
000036	1914				93 CR	R1,R4	maximum PARM length exceeded?			00830000	
000038	4720 C052		00052		94 BH	HIGHPARM	yes -> use maximum as sieve limit			00840000	
00003C	4130 C2F4		002F4		95 LA	R3,PARM+10	right justify ..			00850000	
000040	1B31				96 SR	R3,R1	.. to 10 digits			00860000	
000042	0610				97 BCTR	R1,0	decrement for EXecute			00870000	
000044	4410 C2C0		002C0		98 EX	R1,MOVEPARM	get PARM			00880000	
000048	F279 C2D0	C2EA	002D0	002EA	99 PACK	NUMDEC(8),PARM(10)	pack PARM and ..			00890000	
00004E	4F30 C2D0		002D0		100 CVB	R3,NUMDEC	.. convert to binary			00900000	
000052	5030 C2DC		002DC		101 HIGHPARM	ST R3,LIMIT	set sieve limit			00910000	
					102 NOPARM	OPEN (SYSPRINT,OUTPUT)	open SYSPRINT			00920000	
000056	0700				103+ CNOP	0,4	ALIGN LIST TO FULLWORD			01740001	
000058	4510 C060		00060		104+NOPARM	BAL 1,*+8	LOAD REG1 W/LIST ADDR.			01780000	
00005C	8F				105+ DC	AL1(143)	OPTION BYTE			01900000	
00005D	0003E0				106+ DC	AL3(SYSPRINT)	DCB ADDRESS			01920000	
000060	0A13				107+ SVC	19	ISSUE OPEN SVC			04000000	
					108 GETMAIN VU,LA=GETMAX,A=ISPRIME	allocate all available storage				00930000	
000062	0700				109+* OS/V\$2 RELEASE 4 VERSION -- 10/21/75					00004804	
000064	4510 C072		00072		110+ CNOP	0,4				00366000	
					111+ BAL	1,*+14	BRANCH AROUND LIST			00368000	

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM	0201	01.02	09/17/16
000068	00000440				112+	DC	A(GETMAX)			ADDR. OF LENGTH LIST	00386000
00006C	00000448				113+	DC	A(ISPRIME)			ADDR. OF ADDR. LIST	00406002
000070	C0				114+	DC	BL1'11000000'			MODE AND OPTION FLAGS	00462002
000071	00				115+	DC	AL1(0)			SUBPOOL VALUE	00510000
000072	0A04				116+	SVC	4			ISSUE GETMAIN SVC	00820002
000074	5870 C44C	0044C			117	L	R7,MAXMEM			storage amount obtained times 16 ..	00940001
000078	8970 0004	00004			118	SLL	R7,4			.. is maximum sieve limit possible	00946001
00007C	5970 C2DC	002DC			119	C	R7,LIMIT			does requested limit fit into storage?	00960000
000080	47B0 C088	00088			120	BNL	*+8			yes -> use requested limit	00970000
000084	5070 C2DC	002DC			121	ST	R7,LIMIT			no -> use maximum possible	00980000
000088	5860 C448	00448			122	L	R6,ISPRIME			address of storage obtained	00990000
00008C	5880 C2DC	002DC			123	L	R8,LIMIT			sieve limit	01000000
000090	1799				124	XR	R9,R9			clear R9 for modulo	01010000
000092	8C80 0004	00004			125	SRDL	R8,4			divide sieve limit by 16	01020001
000096	1878				126	LR	R7,R8			amount of storage to be initialized	01030000
000098	1299				127	LTR	R9,R9			sieve limit modulo 16 = 0?	01040001
00009A	4780 C0A2	000A2			128	BZ	*+8			yes -> use computed storage amount	01050000
00009E	4170 7001	00001			129	LA	R7,1(,R7)			no -> increment amount by one	01060000
0000A2	1788				130	XR	R8,R8			clear R8 for MVCL	01070000
0000A4	5890 C2E0	002E0			131	L	R9,FF			get initialization pattern for MVCL	01080001
0000A8	0E68				132	MVCL	R6,R8			initialize prime indication flags	01090000
0000AA	5860 C448	00448			133	L	R6,ISPRIME			start of prime indication flags	01100000
0000AE	927F 6000	00000			134	MVI	0(R6),X'7F'			make one not prime	01110001
					135	*					01120000
					136	*	Sieve of Eratosthenes				01130000
					137	*					01140000
0000B2	5810 C448	00448			138	L	R1,ISPRIME			address of prime flag array	01150000
0000B6	4120 C2FC	002FC			139	LA	R2,CROSSOUT			masks to cross out primes	01160000
0000BA	1733				140	XR	R3,R3			clear for prime test EXecuted later	01170000
0000BC	4140 C2F4	002F4			141	LA	R4,PRIMFLGS			masks for prime test	01180000
0000C0	4150 0001	00001			142	LA	R5,1			candidate bit offset \ sieve starts	01190001
0000C4	1861				143	LR	R6,R1			candidate address > at	01200000
0000C6	4170 0003	00003			144	LA	R7,3			candidate value / three	01210000
0000CA	41E0 0002	00002			145	LA	R14,2			incrementor for large numbers	01220001
0000CE	1897				146	SIEVE	LR	R9,R7		is square of ..	01230000
0000D0	1C87				147	MR	R8,R7			.. candidate value ..	01240000
0000D2	5990 C2DC	002DC			148	C	R9,LIMIT			.. higher than sieve limit?	01250000
0000D6	4720 C12C	0012C			149	BH	PRNTPRIM			yes -> sieve complete, go print	01260000
0000DA	4335 4000	00000			150	IC	R3,0(R5,R4)			is prime flag for ..	01270000
0000DE	4430 C2C6	002C6			151	EX	R3,TESTPRIM			.. this candidate set?	01280000
0000E2	47E0 C112	00112			152	BNO	SIEVENXT			no -> check next candidate	01290000
0000E6	8970 0001	00001			153	CLRMULT	SLL	R7,1		only odd multiples need to be cleared	01300001
0000EA	18A9				154	CLRMULTL	LR	R10,R9		current prime multiple	01303001
0000EC	06A0				155	BCTR	R10,0			decrement for addressing	01310000
0000EE	88A0 0001	00001			156	SRL	R10,1			divide by two (address compression)	01315001
0000F2	8CA0 0003	00003			157	SRDL	R10,3			divide by eight	01320000
0000F6	1AA1				158	AR	R10,R1			address of prime multiple	01330000
0000F8	88B0 001D	0001D			159	SRL	R11,29			bit offset of prime multiple	01340000
0000FC	433B 2000	00000			160	IC	R3,0(R11,R2)			get cross out mask	01350000
000100	4430 C2CA	002CA			161	EX	R3,CLRPRIM			cross out prime multiple	01360000
000104	1A97				162	AR	R9,R7			is next odd prime multiple ..	01370001
000106	5990 C2DC	002DC			163	C	R9,LIMIT			.. not higher than sieve limit?	01380000
00010A	47D0 C0EA	000EA			164	BNH	CLRMULTL			yes -> go cross it out	01390001
00010E	8870 0001	00001			165	SRL	R7,1			restore candidate value	01393001
000112	1A7E				166	SIEVENXT	AR	R7,R14		next please, skip even numbers	01400000

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM	0201	01.02	09/17/16
000114	4150	5001	00001	167		LA	R5,1(,R5)				01410001
000118	4950	C2E8	002E8	168		CH	R5,EIGHT	next bit position			01420000
00011C	4740	COCE	000CE	169		BL	SIEVE	end of byte reached			01430000
000120	4150	0000	00000	170		LA	R5,0	no -> check candidate			01440001
000124	4160	6001	00001	171		LA	R6,1(,R6)	yes -> reset candidate bit offset ..			01450001
000128	47F0	COCE	000CE	172		B	SIEVE	.. and increment to next byte			01470000
			173	*				go check it			01480000
			174	*			Print primes				01490000
			175	*							01500000
00012C	4150	0001	00001	176	PRNTPRIM	LA	R5,1	candidate bit offset \ print starts			01510001
000130	1861			177		LR	R6,R1	candidate address > at			01520000
000132	4170	0003	00003	178		LA	R7,3	candidate value / three			01530000
000136	4120	0002	00002	179		LA	R2,2	incrementor for large limits			01540000
00013A	4180	0001	00001	180		LA	R8,1	number of primes found, the two is ..			01550000
00013E	41A0	0001	00001	181		LA	R10,1	.. pre set and ..			01560000
000142	4190	C313	00313	182		LA	R9,PRNTLINE+11	.. pre printed			01570000
000146	17BB			183		XR	R11,R11	no lines printed on this page yet			01580000
000148	47F0	C158	00158	184		B	*+16	skip page initialization on first page			01590000
00014C	D2A5	C307	C306	00307	00306	NEWLINE	MVC	new line			01600000
000152	4190	C308	00308	186		LA	R9,PRNTLINE	current print position			01610000
000156	17AA			187		XR	R10,R10	no numbers printed on this line yet			01620000
000158	49B0	C2E4	002E4	188		CH	R11,LPP	page full?			01630000
00015C	4770	C166	00166	189		BNE	CHKPRIME	no -> check next number			01640000
000160	17BB			190		XR	R11,R11	no lines printed on this page yet			01650000
000162	92F1	C307	00307	191		MVI	CC,C'1'	next line starts a new page			01660000
000166	5970	C2DC	002DC	192	CHKPRIME	C	R7,LIMIT	sieve limit reached?			01670000
00016A	4720	C1D2	001D2	193		BH	LASTLINE	yes -> print last line			01680000
00016E	4335	4000	00000	194		IC	R3,0(R5,R4)	is prime flag for ..			01690000
000172	4430	C2C6	002C6	195		EX	R3,TESTPRIM	.. this candidate set?			01700000
000176	47E0	C1B8	001B8	196		BNO	CHKNEXT	no -> check next candidate			01710000
00017A	4180	8001	00001	197		LA	R8,1(,R8)	yes -> increment number of primes found			01720000
00017E	4E70	C2D0	002D0	198		CVD	R7,NUMDEC	convert prime to decimal			01730000
000182	D20A	9000	C3B6	00000	003B6	MVC	0(11,R9),EDIT	get print format into print position			01740000
000188	DE0A	9001	C2D3	00001	002D3	ED	1(11,R9),NUMDEC+3	format prime			01750000
00018E	41A0	A001	00001	201		LA	R10,1(,R10)	increment number of primes and ..			01760000
000192	4190	900B	0000B	202		LA	R9,11(,R9)	.. print position			01770000
000196	49A0	C2E6	002E6	203		CH	R10,NPL	is current line filled up?			01780000
00019A	4770	C1B8	001B8	204		BNE	CHKNEXT	no -> check next candidate			01790000
			205			PUT	SYSPRINT,CC	yes -> print line			01800000
00019E	4110	C3E0	003E0	206+		LA	1,SYSPRINT	LOAD PARAMETER REG 1			01900002
0001A2	4100	C307	00307	207+		LA	0,CC	LOAD PARAMETER REG 0			02500002
0001A6	58F0	1030	00030	208+		L	15,48(0,1)	LOAD PUT ROUTINE ADDR			00550000
0001AA	05EF			209+		BALR	14,15	LINK TO PUT ROUTINE			00600000
0001AC	41B0	B001	00001	210		LA	R11,1(,R11)	increment number of lines on this page			01810000
0001B0	41F0	C14C	0014C	211		LA	R15,NEWLINE	next loop initializes a new line			01820000
0001B4	47F0	C1BC	001BC	212		B	*+8	skip adding to current line			01830000
0001B8	41F0	C166	00166	213	CHKNEXT	LA	R15,CHKPRIME	next loop adds to current line			01840000
0001BC	1A72			214		AR	R7,R2	next please, skip even numbers			01850000
0001BE	4150	5001	00001	215		LA	R5,1(,R5)	next bit position			01860001
0001C2	4950	C2E8	002E8	216		CH	R5,EIGHT	end of byte reached			01870000
0001C6	074F			217		BLR	R15	no -> check candidate			01880000
0001C8	4150	0000	00000	218		LA	R5,0	yes -> reset candidate bit offset ..			01890001
0001CC	4160	6001	00001	219		LA	R6,1(,R6)	.. and increment to next byte			01900001
0001D0	07FF			220		BR	R15	go check it			01920000
0001D2	12AA			221	LASTLINE	LTR	R10,R10	not yet printed primes in this line?			01930000

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM	0201	01.02	09/17/16
0001D4	4780	C1F0	001F0		222	BZ	SUMMARY	no -> print summary		01940000	
					223	PUT	SYSPRINT,CC	yes -> print last primes		01950000	
0001D8	4110	C3E0	003E0		224+	LA	1,SYSPRINT	LOAD PARAMETER REG 1		01900002	
0001DC	4100	C307	00307		225+	LA	0,CC	LOAD PARAMETER REG 0		02500002	
0001E0	58F0	1030	00030		226+	L	15,48(0,1)	LOAD PUT ROUTINE ADDR		00550000	
0001E4	05EF				227+	BALR	14,15	LINK TO PUT ROUTINE		00600000	
0001E6	D2A5	C307	C306	00307	00306	MVC	CC(166),NL	new line		01960000	
0001EC	41B0	B001	00001		229	LA	R11,1(,R11)	increment number of lines on this page		01970000	
0001F0	95F1	C307	00307	230	SUMMARY	CLI	CC,C'1'	new page already started?		01980000	
0001F4	4780	C210	00210	231	BE	PRINTSUM		yes -> print summary line		01990000	
0001F8	41B0	B001	00001	232	LA	R11,1(,R11)	no -> increment number of lines			02000000	
0001FC	49B0	C2E4	002E4	233	CH	R11,LPP	page almost full?			02010000	
000200	47B0	C20C	0020C	234	BNL	*+12	yes -> start new page			02020000	
000204	92F0	C307	00307	235	MVI	CC,C'0'	no -> skip one line			02030000	
000208	47F0	C210	00210	236	B	*+8	print summary			02040000	
00020C	92F1	C307	00307	237	MVI	CC,C'1'	start new page			02050000	
000210	4E80	C2D0	002D0	238	PRINTSUM	CVD	R8,NUMDEC	convert number of primes to decimal		02060000	
000214	D228	C308	C3B6	00308	003B6	MVC	PRNLINE(LSUMMARY),EDIT	get summary line and formats		02070000	
00021A	DE0A	C309	C2D3	00309	002D3	ED	PRNLINE+1(11),NUMDEC+3	format number of lines		02080000	
000220	5880	C2DC	002DC	241	L	R8,LIMIT	get sieve limit			02090000	
000224	4E80	C2D0	002D0	242	CVD	R8,NUMDEC	convert to decimal			02100000	
000228	DE0A	C321	C2D3	00321	002D3	ED	PRNLINE+LIMITEBC+1(11),NUMDEC+3	format sieve limit		02110000	
				243	PUT	SYSPRINT,CC	print number of primes and sieve limit			02120000	
00022E	4110	C3E0	003E0	244	LA	1,SYSPRINT	LOAD PARAMETER REG 1			01900002	
000232	4100	C307	00307	245+	LA	0,CC	LOAD PARAMETER REG 0			02500002	
000236	58F0	1030	00030	246+	L	15,48(0,1)	LOAD PUT ROUTINE ADDR			00550000	
00023A	05EF			247+	BALR	14,15	LINK TO PUT ROUTINE			00600000	
00023C	D203	C304	C3AE	00304	003AE	MVC	TELLUSER(4),SUMWTOP	get WTO prefix and suffix ..		02130000	
000242	D203	C331	C3B2	00331	003B2	MVC	PRNLINE+LSUMMARY(4),SUMWTOS	.. around summary line		02140000	
				250	WTO	MF=(E,TELLUSER)	print summary line in job log			02150000	
000248	4110	C304	00304	251	LA	1,TELLUSER	LOAD PARAMETER REG 1			01900002	
00024C	0A23			252+	SVC	35	ISSUE SVC			01500002	
				253+	*					02160000	
				254	*					02170000	
				255	*	Cleanup and return				02180000	
				256	*					02190000	
				257		FREEMAIN VU,A=ISPRIME	release storage			00001603	
				258+*		OS/VS2 RELEASE 3 VERSION	-- 10/25/74				
00024E	0700			259+	CNOP	0,4				00092000	
000250	4510	C25E	0025E	260+	BAL	1,*+14		BRANCH AROUND LIST		00093000	
000254	00000000			261+	DC	A(0)				00107000	
000258	00000448			262+	DC	A(ISPRIME)		AREA LIST ADDRESS		00109000	
00025C	C0			263+	DC	AL1(192)		MODE BYTE		00119000	
00025D	00			264+	DC	AL1(0)		SUBPOOL VALUE		00127000	
00025E	0A05			265+	SVC	5		ISSUE FREEMAIN SVC		00311202	
				266	CLOSE	SYSPRINT	close printer			02200000	
000260				267+	CNOP	0,4		ALIGN LIST TO FULLWORD		02420002	
000260	4510	C268	00268	268+	BAL	1,*+8		LOAD REG1 W/LIST ADDR		02460002	
000264	80			269+	DC	AL1(128)		OPTION BYTE		02580000	
000265	0003E0			270+	DC	AL3(SYSPRINT)		DCB ADDRESS		02600000	
000268	0A14			271+	SVC	20		ISSUE CLOSE SVC		01640000	
00026A	58D0	D004	00004	272	L	R13,4(,R13)		caller's save area pointer		02210000	
				273	RETURN	(14,12),RC=0		restore registers and return		02220000	
00026E	98EC	D00C	0000C	274+	LM	14,12,12(13)		RESTORE THE REGISTERS		00650000	
000272	41F0	0000	00000	275+	LA	15,0(0,0)		LOAD RETURN CODE		01750000	
000276	07FE			276+	BR	14		RETURN		02000000	

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM	0201	01.02	09/17/16
					277	*			02230000		
					278	* Data area			02240000		
					279	*			02250000		
000278					280	SAVEA DS 18F	save area		02260000		
0002C0 D200 3000 2002 00000 00002					281	MOVEPARM MVC 0(1,R3),2(R2)	EXecuted to retrieve PARM field		02270000		
0002C6 9100 6000 00000					282	TESTPRIM TM 0(R6),0	EXecuted to test for being prime		02280000		
0002CA 9400 A000 00000					283	CLRPRIM NI 0(R10),0	EXecuted to cross out a prime multiple		02290000		
0002D0					284	NUMDEC DS D	target for decimal conversion		02300000		
0002D8 7FFFFFFF					285	HIGHLIM DC F'2147483647'	highest possible fullword value		02310000		
0002DC 000007D0					286	LIMIT DC F'2000'	default sieve limit		02320000		
0002E0 FF000000					287	FF DC X'FF000000'	prime flags initialization pattern		02330001		
0002E4 0040					288	LPP DC H'64'	lines to print per page		02340000		
0002E6 000F					289	NPL DC H'15'	prime numbers to print per line		02350000		
0002E8 0008					290	EIGHT DC H'8'	used for loops and comparisons		02360000		
0002EA 4040404040404040					291	PARM DC 10C' '	PARM field goes here		02370000		
0002F4 80					292	PRIMFLGS DC B'10000000'	.. the set ..		02380000		
0002F5 40					293	DC B'01000000'	.. bit's ..		02390000		
0002F6 20					294	DC B'00100000'	.. position ..		02400000		
0002F7 10					295	DC B'00010000'	.. represents ..		02410000		
0002F8 08					296	DC B'00001000'	.. a ..		02420000		
0002F9 04					297	DC B'00000100'	.. potential ..		02430000		
0002FA 02					298	DC B'00000010'	.. prime ..		02440000		
0002FB 01					299	DC B'00000001'	.. number ..		02450000		
0002FC 7F				300	CROSSOUT DC B'01111111'	.. masks ..		02460000			
0002FD BF				301	DC B'10111111'	.. used ..		02470000			
0002FE DF				302	DC B'11011111'	.. to ..		02480000			
0002FF EF				303	DC B'11101111'	.. cross ..		02490000			
000300 F7				304	DC B'11110111'	.. out ..		02500000			
000301 FB				305	DC B'11111011'	.. none ..		02510000			
000302 FD				306	DC B'11111101'	.. prime ..		02520000			
000303 FE				307	DC B'11111110'	.. numbers ..		02530000			
000304				308	DS 0F			02540000			
				309	TELLUSER DS H	WTO plist for summary message goes here		02550000			
000306 40				310	NL DC C' '	newline carriage control		02560000			
000307 F1				311	CC DC C'1'	formfeed on first output line		02570000			
000308 40404040404040				312	PRNTLINE DC 10C' '	line to be printed ..		02580000			
000312 F2				313	DC C'2'	.. the prime two is ..		02590000			
000313 40404040404040				314	DC 154C' '	.. pre printed on initial line		02600000			
0003AD 40				315	DC C' '	filler to receive EDit garbage		02610000			
0003AE 002D8000				316	SUMWTOP DC X'002D8000'	prefix for summary message WTO		02620000			
0003B2 02000020				317	SUMWTOS DC X'02000020'	suffix for summery message WTO		02630000			
0003B6 40402020202020				318	EDIT DC 2C' ',9X'20'	EDit pattern to format 9 digits		02640000			
0003C1 409799899485A240				319	DC C' primes up to'	.. skeleton ..		02650000			
		00018		320	LIMITEBC EQU *-EDIT	.. for ..		02660000			
0003CE 40402020202020				321	DC 2C' ',9X'20'	.. summary ..		02670000			
0003D9 408696A49584				322	DC C' found'	.. line ..		02680000			
		00029		323	LSUMMARY EQU *-EDIT	summary line length		02690001			
				324	SYSPRINT DCB DSORG=PS,MACRF=PM,DDNAME=SYSPRINT,RECFM=FBA,LRECL=166,BLKSIZE=16600	DCB for SYSPRINT	X02700000 02710000				
				326+*		DATA CONTROL BLOCK		22770000			
				327+*				22860000			
0003DF 00				328+SYSPRINT DC	OF'0'	ORIGIN ON WORD BOUNDARY		22914000			

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM	0201	01.02	09/17/16
					330+*		DIRECT ACCESS DEVICE INTERFACE				27360000
0003E0	0000000000000000		332+	DC	BL16'0'		FDAD, DVTBL				27540000
0003F0	00000000		333+	DC	A(0)		KEYLE, DEVT, TRBAL				27720000
			335+*				COMMON ACCESS METHOD INTERFACE				48690000
0003F4 00		337+	DC	AL1(0)			BUENO				49050000
0003F5 000001		338+	DC	AL3(1)			BUFCB				54720000
0003F8 0000		339+	DC	AL2(0)			BUFL				55170000
0003FA 4000		340+	DC	BL2'0100000000000000'							*55800000
		+ 0003FC 00000001	341+	DC	A(1)		DSORG				55890000
			343+*				IOBAD				56340000
							FOUNDATION EXTENSION				56610000
000400 00		345+	DC	BL1'00000000'			BFTEK, BFLN, HIARCHY				59850000
000401 000001		346+	DC	AL3(1)			EODAD				65970000
000404 94		347+	DC	BL1'10010100'							*66150000
		+ 000405 000000	348+	DC	AL3(0)		RECFM				66240000
			350+*				EXLST				66330000
							FOUNDATION BLOCK				66690000
000408 E2E8E2D7D9C9D5E3		352+	DC	CL8'SYSPRINT'			DDNAME				66870000
000410 02		353+	DC	BL1'00000010'			OFLGS				68220000
000411 00		354+	DC	BL1'00000000'							68310000
000412 0050		355+	DC	BL2'0000000010100000'			IFLG				*68400000
		+ +					MACR				*68490000
			357+*				BSAM-BPAM-QSAM INTERFACE				68580000
000414 00		359+	DC	BL1'00000000'							*74430000
		+ 000415 000001	360+	DC	AL3(1)		CHECK, GERR, PERR				RER1 74700000
000418 0000001		361+	DC	A(1)			SYNAD				74790000
00041C 0000		362+	DC	H'0'			CIND1, CIND2				74880000
00041E 40D8		363+	DC	AL2(16600)			BLKSIZE				74970000
000420 00000000		364+	DC	F'0'			WCPO, WCPL, OFFSR, OFFSW				75240000
000424 00000001		365+	DC	A(1)			IOBA				75870000
000428 00		366+	DC	AL1(0)			NCP				75960000
000429 000001		367+	DC	AL3(1)			EOBR, EOBAD				76050000
		369+*					QSAM INTERFACE				76140000
											81450000
00042C 00000001		371+	DC	A(1)			RECAD				81630000
000430 0000		372+	DC	H'0'			QSWS				81810000
000432 00A6		373+	DC	AL2(166)		LRECL					80730000
000434 00		374+	DC	BL1'00000000'			EROPT				82530000
000435 000001		375+	DC	AL3(1)			CNTRL				82620000
000438 00000000		376+	DC	F'0'			PRECL				82710000
00043C 00000001		377+	DC	A(1)			EOB				82800000
000440 00000008		378 GETMAX	DC	F'8'			GETMAIN plist to obtain maximum ..				02720000
000444 00FFFFF8		379	DC	X'00FFFFFF8'			.. storage available in region				02730000

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM	0201	01.02	09/17/16
000448			380	ISPRIME	DS	F	address of allocated storage	02740000			
00044C			381	MAXMEM	DS	F	amount of storage allocated	02750000			
			382		YREGS	,	register equates	02760000			
			00000	384+R0	EQU	0		00060000			
			00001	385+R1	EQU	1		00070000			
			00002	386+R2	EQU	2		00080000			
			00003	387+R3	EQU	3		00090000			
			00004	388+R4	EQU	4		00100000			
			00005	389+R5	EQU	5		00110000			
			00006	390+R6	EQU	6		00120000			
			00007	391+R7	EQU	7		00130000			
			00008	392+R8	EQU	8		00140000			
			00009	393+R9	EQU	9		00150000			
			0000A	394+R10	EQU	10		00160000			
			0000B	395+R11	EQU	11		00170000			
			0000C	396+R12	EQU	12		00180000			
			0000D	397+R13	EQU	13		00190000			
			0000E	398+R14	EQU	14		00200000			
			0000F	399+R15	EQU	15		00210000			
000000			401		END	PRIMASM	end of PRIMASM	02770000			

POS.ID	REL.ID	FLAGS	ADDRESS	ASM	0201	01.02	09/17/16
0001	0001	08	00005D				
0001	0001	0C	000068				
0001	0001	0C	00006C				
0001	0001	0C	000258				
0001	0001	08	000265				

SYMBOL	LEN	VALUE	DEFN	REFERENCES	ASM	0201	01.02	09/17/16
CC	00001	00000307	00311	00185 00191 00207 00225 00228 00230 00235 00237 00246				
CHKNEXT	00004	000001B8	00213	00196 00204				
CHKPRIME	00004	00000166	00192	00189 00213				
CLRMULTL	00002	000000EA	00154	00164				
CLRPRIM	00004	000002CA	00283	00161				
CROSSOUT	00001	000002FC	00300	00139				
EDIT	00001	000003B6	00318	00199 00239 00320 00323				
EIGHT	00002	000002E8	00290	00168 00216				
FF	00004	000002E0	00287	00131				
GETMAX	00004	00000440	00378	00112				
HIGHLIM	00004	000002D8	00285	00091				
HIGHPARM	00004	00000052	00101	00094				
ISPRIME	00004	00000448	00380	00113 00122 00133 00138 00262				
LASTLINE	00002	000001D2	00221	00193				
LIMIT	00004	000002DC	00286	00101 00119 00121 00123 00148 00163 00192 00241				
LIMITEBC	00001	00000018	00320	00243				
LPP	00002	000002E4	00288	00188 00233				
LSUMMARY	00001	00000029	00323	00239 00250				
MAXMEM	00004	0000044C	00381	00117				
MOVEPARM	00006	000002C0	00281	00098				
NEWLINE	00006	0000014C	00185	00211				
NL	00001	00000306	00310	00185 00228				
NOPARM	00004	00000058	00104	00090				
NPL	00002	000002E6	00289	00203				
NUMDEC	00008	000002D0	00284	00099 00100 00198 00200 00238 00240 00242 00243				
PARM	00001	000002EA	00291	00095 00099				
PRIMASM	00001	00000000	00072	00079 00401				
PRIMFLGS	00001	000002F4	00292	00141				
PRINTSUM	00004	00000210	00238	00231				
PRNTLINE	00001	00000308	00312	00182 00186 00239 00240 00243 00250				
PRNTPRIM	00004	0000012C	00176	00149				
R1	00001	00000001	00385	00087 00088 00089 00089 00093 00096 00097 00098 00138 00143 00158 00177				
R10	00001	0000000A	00394	00154 00155 00156 00157 00158 00181 00187 00187 00201 00201 00203 00221 00283				
R11	00001	0000000B	00395	00159 00160 00183 00183 00188 00190 00190 00210 00210 00229 00229 00232 00233				
R12	00001	0000000C	00396	00078 00079				
R13	00001	0000000D	00397	00081 00082 00083 00272 00272				
R14	00001	0000000E	00398	00145 00166				
R15	00001	0000000F	00399	00078 00211 00213 00217 00220				
R2	00001	00000002	00386	00080 00081 00082 00083 00087 00088 00139 00160 00179 00214 00281				
R3	00001	00000003	00387	00091 00095 00096 00100 00101 00140 00140 00150 00151 00160 00161 00194 00195 00281				
R4	00001	00000004	00388	00092 00093 00141 00150 00194				
R5	00001	00000005	00389	00142 00150 00167 00167 00168 00170 00176 00194 00215 00215 00216 00218				
R6	00001	00000006	00390	00122 00132 00133 00134 00143 00171 00171 00177 00219 00219 00282				
R7	00001	00000007	00391	00117 00118 00119 00121 00126 00129 00129 00144 00146 00147 00153 00162 00165 00166 00178 00192 00198 00214				
R8	00001	00000008	00392	00123 00125 00126 00130 00130 00132 00147 00180 00197 00197 00238 00241 00242				
R9	00001	00000009	00393	00124 00124 00127 00127 00131 00146 00148 00154 00162 00163 00182 00186 00199 00200 00202 00202				
SAVEA	00004	00000278	00280	00080				
SIEVE	00002	000000CE	00146	00169 00172				
SIEVENXT	00002	00000112	00166	00152				
SUMMARY	00004	000001F0	00230	00222				
SUMWTOP	00004	000003AE	00316	00249				
SUMWTOS	00004	000003B2	00317	00250				
SYSPRINT	00004	000003E0	00328	00106 00206 00224 00245 00270				

SYMBOL	LEN	VALUE	DEFN	REFERENCES		ASM	0201	01.02	09/17/16
TELLUSER	00002	00000304	00309	00249 00252					
TESTPRIM	00004	000002C6	00282	00151 00195					

ASM 0201 01.02 09/17/16

NO STATEMENTS FLAGGED IN THIS ASSEMBLY

HIGHEST SEVERITY WAS 0

OPTIONS FOR THIS ASSEMBLY

```
ALIGN, ALOGIC, BUFSIZE(STD), NODECK, ESD, FLAG(0), LINECOUNT(55), LIST, NOMCALL, YFLAG, WORKSIZE(2097152)
NOMLOGIC, NONNUMBER, OBJECT, NORENT, RLD, NOSTMT, NOLIBMAC, NOTERMINAL, NOTEST, XREF(SHORT)
SYSPARM()
```

WORK FILE BUFFER SIZE/NUMBER = 8702/ 1

TOTAL RECORDS READ FROM SYSTEM INPUT 284

TOTAL RECORDS READ FROM SYSTEM LIBRARY 4443

TOTAL RECORDS PUNCHED 23

TOTAL RECORDS PRINTED 507

GGGGGGGGGG	000000000000
GGGGGGGGGGGG	000000000000
GG GG	00 00
GG	00 00
GG	00 00
GG GGGGG	00 00
GG GGGGG	00 00
GG GG	00 00
GG GG	00 00
GGGGGGGGGGGG	000000000000
GGGGGGGGGG	000000000000

PPPPPPPPPPP	RRRRRRRRRRR	IIIIIIIII	MM MM	EEEEEEEEE	SSSSSSSS
PPPPPPPPPPP	RRRRRRRRRRR	IIIIIIIII	MMM MMM	EEEEEEEEE	SSSSSSSSSS
PP PP	RR RR	II	MMMM MMMM	EE	SS SS
PP PP	RR RR	II	MM MM MM MM	EE	SS
PP PP	RR RR	II	MM MMMM MM	EE	SSS
PPPPPPPPPPP	RRRRRRRRRRR	II	MM MM MM	EEEEEEE	SSSSSSSS
PPPPPPPPPPP	RRRRRRRRRRR	II	MM MM	EEEEEEE	SSSSSSSS
PP	RR RR	II	MM MM	EE	SSS
PP	RR RR	II	MM MM	EE	SS
PP	RR RR	II	MM MM	EE	SS SS
PP	RR RR	II	MM MM	EE	SS
PP	RR RR	IIIIIIIII	MM MM	EEEEEEEEE	SSSSSSSSSS
PP	RR RR	IIIIIIIII	MM MM	EEEEEEEEE	SSSSSSSSSS

SSSSSSSS	YY YY	SSSSSSSS	LL	000000000000	UU	UU	TTTTTTTTTTTT
SSSSSSSSSS	YY YY	SSSSSSSSSS	LL	000000000000	UU	UU	TTTTTTTTTTTT
SS SS	YY YY	SS	LL	00	OO	UU	UU TT
SS	YY YY	SS	LL	00	OO	UU	UU TT
SSS	YYYY	SSS	LL	00	OO	UU	UU TT
SSSSSSSS	YY	SSSSSSSS	LL	00	OO	UU	UU TT
SSSSSSSS	YY	SSSSSSSS	LL	00	OO	UU	UU TT
SSS	YY	SSS	LL	00	OO	UU	UU TT
SS	YY	SS	LL	00	OO	UU	UU TT
SS SS	YY	SS	LL	00	OO	UU	UU TT
SSSSSSSSSS	YY	SSSSSSSSSS	LLLLLLLLLL	000000000000	UUUUUUUUUUUU	UUUUUUUUUUUU	TT
SSSSSSSSSS	YY	SSSSSSSSSS	LLLLLLLLLL	000000000000	UUUUUUUUUUUU	UUUUUUUUUUUU	TT

AAAAAA	AAAAAA	00000000
AAAAAA	AAAAAA	000000000000
AA AA		00 00
AA AA		00 00
AA AA		00 00
AAAAAA	AAAAAA	00 00
AAAAAA	AAAAAA	00 00
AA AA		000000000000
AA AA		000000000000

VS LOADER

OPTIONS USED - PRINT,NOMAP,NOLET,CALL,RES,NOTERM,SIZE=307200,NAME=**GO

TOTAL LENGTH 450
ENTRY ADDRESS AC010

GGGGGGGGGG	000000000000
GGGGGGGGGGGG	000000000000
GG GG	00 00
GG	00 00
GG	00 00
GG GGGGG	00 00
GG GGGGG	00 00
GG GG	00 00
GG GG	00 00
GGGGGGGGGGGG	000000000000
GGGGGGGGGG	000000000000

PPPPPPPPPPP	RRRRRRRRRRR	IIIIIIIII	MM MM	EEEEEEEEE	SSSSSSSSS
PPPPPPPPPPP	RRRRRRRRRRR	IIIIIIIII	MMM MMM	EEEEEEEEE	SSSSSSSSSSS
PP PP	RR RR	II	MMMM MMMM	EE	SS SS
PP PP	RR RR	II	MM MM MM MM	EE	SS
PP PP	RR RR	II	MM MMMM MM	EE	SSS
PPPPPPPPPPP	RRRRRRRRRRR	II	MM MM MM	EEEEEEE	SSSSSSSS
PPPPPPPPPPP	RRRRRRRRRRR	II	MM MM	EEEEEEE	SSSSSSSS
PP	RR RR	II	MM MM	EE	SSSSSSSS
PP	RR RR	II	MM MM	EE	SS
PP	RR RR	II	MM MM	EE	SS SS
PP	RR RR	II	MM MM	EE	SS
PP	RR RR	IIIIIIIII	MM MM	EEEEEEEEE	SSSSSSSSSSS
PP	RR RR	IIIIIIIII	MM MM	EEEEEEEEE	SSSSSSSSSSS

SSSSSSSS	YY	YY	SSSSSSSS	PPPPPPPPP	RRRRRRRRR	IIIIIIIII	NN	NN	TTTTTTTTTTT
SSSSSSSSSS	YY	YY	SSSSSSSSSS	PPPPPPPPPP	RRRRRRRRRR	IIIIIIIII	NNN	NN	TTTTTTTTTTT
SS SS	YY	YY	SS SS	PP PP	RR RR	II	NNNN	NN	TT
SS	YY YY	SS	PP	PP	RR	RR	II	NN NN	NN
SSS	YYYY	SSS	PP	PP	RR	RR	II	NN NN	NN
SSSSSSSS	YY	SSSSSSSS	PPPPPPPPP	RRRRRRRRRR	II	NN NN	NN	TT	
SSSSSSSS	YY	SSSSSSSS	PPPPPPPPP	RRRRRRRRR	II	NN NN	NN	TT	
SSS	YY	SS	PP	RR	RR	II	NN NN	NN	TT
SS	YY	SS	PP	RR	RR	II	NN NNNN	NN	TT
SS SS	YY	SS	SS	PP	RR	RR	II	NN NNN	TT
SSSSSSSSSS	YY	SSSSSSSSSS	PP	RR	RR	IIIIIIIII	NN	NN	TT
SSSSSSSSSS	YY	SSSSSSSSSS	PP	RR	RR	IIIIIIIII	NN	N	TT

AAAAAA	00000000
AAAAAA	0000000000
AA AA	00 00
AA AA	00 00
AA AA	00 00
AAAAAA	00 00
AAAAAA	00 00
AA AA	0000000000
AA AA	0000000000

2	3	5	7	11	13	17	19	23	29	31	37
53	59	61	67	71	73	79	83	89	97	101	103
127	131	137	139	149	151	157	163	167	173	179	181
199	211	223	227	229	233	239	241	251	257	263	269
283	293	307	311	313	317	331	337	347	349	353	359
383	389	397	401	409	419	421	431	433	439	443	449
467	479	487	491	499	503	509	521	523	541	547	557
577	587	593	599	601	607	613	617	619	631	641	643
661	673	677	683	691	701	709	719	727	733	739	743
769	773	787	797	809	811	821	823	827	829	839	853
877	881	883	887	907	911	919	929	937	941	947	953
983	991	997	1009	1013	1019	1021	1031	1033	1039	1049	1051
1087	1091	1093	1097	1103	1109	1117	1123	1129	1151	1153	1163
1193	1201	1213	1217	1223	1229	1231	1237	1249	1259	1277	1279
1297	1301	1303	1307	1319	1321	1327	1361	1367	1373	1381	1399
1429	1433	1439	1447	1451	1453	1459	1471	1481	1483	1487	1489
1523	1531	1543	1549	1553	1559	1567	1571	1579	1583	1597	1601
1619	1621	1627	1637	1657	1663	1667	1669	1693	1697	1709	
1741	1747	1753	1759	1777	1783	1787	1789	1801	1811	1823	1831
1871	1873	1877	1879	1889	1901	1907	1913	1931	1933	1949	1951
1993	1997	1999	2003	2011	2017	2027	2029	2039	2053	2063	2069
2089	2099	2111	2113	2129	2131	2137	2141	2143	2153	2161	2179
2221	2237	2239	2243	2251	2267	2269	2273	2281	2287	2293	2297
2339	2341	2347	2351	2357	2371	2377	2381	2383	2389	2393	2399
2437	2441	2447	2459	2467	2473	2477	2503	2521	2531	2539	2543
2579	2591	2593	2609	2617	2621	2633	2647	2657	2659	2663	2671
2689	2693	2699	2707	2711	2713	2719	2729	2731	2741	2749	2753
2791	2797	2801	2803	2819	2833	2837	2843	2851	2857	2861	2879
2909	2917	2927	2939	2953	2957	2963	2969	2971	2999	3001	3011
3041	3049	3061	3067	3079	3083	3089	3109	3119	3121	3137	3163
3187	3191	3203	3209	3217	3221	3229	3251	3253	3257	3259	3271
3313	3319	3323	3329	3331	3343	3347	3359	3361	3371	3373	3389
3433	3449	3457	3461	3463	3467	3469	3491	3499	3511	3517	3527
3541	3547	3557	3559	3571	3581	3583	3593	3607	3613	3617	3623
3659	3671	3673	3677	3691	3697	3701	3709	3719	3727	3733	3739
3779	3793	3797	3803	3821	3823	3833	3847	3851	3853	3863	3877
3911	3917	3919	3923	3929	3931	3943	3947	3967	3989	4001	4003
4021	4027	4049	4051	4057	4073	4079	4091	4093	4099	4111	4127
4153	4157	4159	4177	4201	4211	4217	4219	4229	4231	4241	4243
4271	4273	4283	4289	4297	4327	4337	4339	4349	4357	4363	4373
4421	4423	4441	4447	4451	4457	4463	4481	4483	4493	4507	4513
4547	4549	4561	4567	4583	4591	4597	4603	4621	4637	4639	4643
4663	4673	4679	4691	4703	4721	4723	4729	4733	4751	4759	4783
4799	4801	4813	4817	4831	4861	4871	4877	4889	4903	4909	4919
4943	4951	4957	4967	4969	4973	4987	4993	4999	5003	5009	5011
5051	5059	5077	5081	5087	5099	5101	5107	5113	5119	5147	5153
5189	5197	5209	5227	5231	5233	5237	5261	5273	5279	5281	5297
5333	5347	5351	5381	5387	5393	5399	5407	5413	5417	5419	5431
5449	5471	5477	5479	5483	5501	5503	5507	5519	5521	5527	5531
5573	5581	5591	5623	5639	5641	5647	5651	5653	5657	5659	5669
5701	5711	5717	5737	5741	5743	5749	5779	5783	5791	5801	5807
5839	5843	5849	5851	5857	5861	5867	5869	5879	5881	5897	5903
5953	5981	5987	6007	6011	6029	6037	6043	6047	6053	6067	6073
6101	6113	6121	6131	6133	6143	6151	6163	6173	6197	6199	6203
6229	6247	6257	6263	6269	6271	6277	6287	6299	6301	6311	6317
6343	6353	6359	6361	6367	6373	6379	6389	6397	6421	6427	6449
6481	6491	6521	6529	6547	6551	6553	6563	6569	6571	6577	6581
6637	6653	6659	6661	6673	6679	6689	6691	6701	6703	6709	6719
6763	6779	6781	6791	6793	6803	6823	6827	6829	6833	6841	6857
6883	6899	6907	6911	6917	6947	6949	6959	6961	6967	6971	6977
7001	7013	7019	7027	7039	7043	7057	7069	7079	7103	7109	7121
7159	7177	7187	7193	7207	7211	7213	7219	7229	7237	7243	7247
7307	7309	7321	7331	7333	7349	7351	7369	7393	7411	7417	7433

7477

7481

7487

7489

7499

7507

7517

7523

7529

7537

7541

7547

7573	7577	7583	7589	7591	7603	7607	7621	7639	7643	7649	7669
7691	7699	7703	7717	7723	7727	7741	7753	7757	7759	7789	7793
7841	7853	7867	7873	7877	7879	7883	7901	7907	7919	7927	7933
7963	7993	8009	8011	8017	8039	8053	8059	8069	8081	8087	8089
8117	8123	8147	8161	8167	8171	8179	8191	8209	8219	8221	8231
8263	8269	8273	8287	8291	8293	8297	8311	8317	8329	8353	8363
8389	8419	8423	8429	8431	8443	8447	8461	8467	8501	8513	8521
8543	8563	8573	8581	8597	8599	8609	8623	8627	8629	8641	8647
8681	8689	8693	8699	8707	8713	8719	8731	8737	8741	8747	8753
8803	8807	8819	8821	8831	8837	8839	8849	8861	8863	8867	8887
8933	8941	8951	8963	8969	8971	8999	9001	9007	9011	9013	9029
9059	9067	9091	9103	9109	9127	9133	9137	9151	9157	9161	9173
9203	9209	9221	9227	9239	9241	9257	9277	9281	9283	9293	9311
9341	9343	9349	9371	9377	9391	9397	9403	9413	9419	9421	9431
9461	9463	9467	9473	9479	9491	9497	9511	9521	9533	9539	9547
9613	9619	9623	9629	9631	9643	9649	9661	9677	9679	9689	9697
9739	9743	9749	9767	9769	9781	9787	9791	9803	9811	9817	9829
9857	9859	9871	9883	9887	9901	9907	9923	9929	9931	9941	9949
10009	10037	10039	10061	10067	10069	10079	10091	10093	10099	10103	10111
10151	10159	10163	10169	10177	10181	10193	10211	10223	10243	10247	10253
10273	10289	10301	10303	10313	10321	10331	10333	10337	10343	10357	10369
10429	10433	10453	10457	10459	10463	10477	10487	10499	10501	10513	10529
10589	10597	10601	10607	10613	10627	10631	10639	10651	10657	10663	10667
10711	10723	10729	10733	10739	10753	10771	10781	10789	10799	10831	10837
10861	10867	10883	10889	10891	10903	10909	10937	10939	10949	10957	10973
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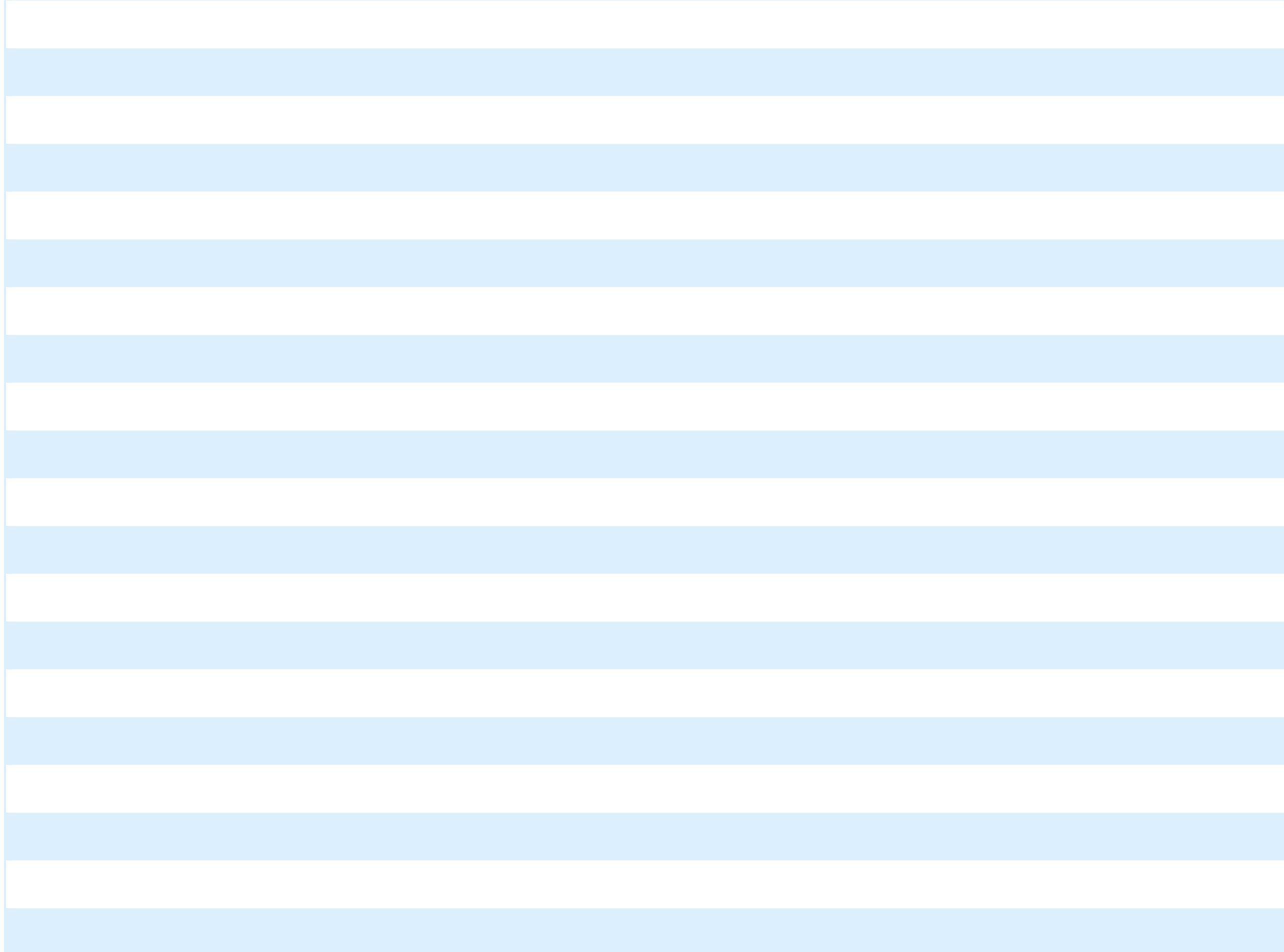
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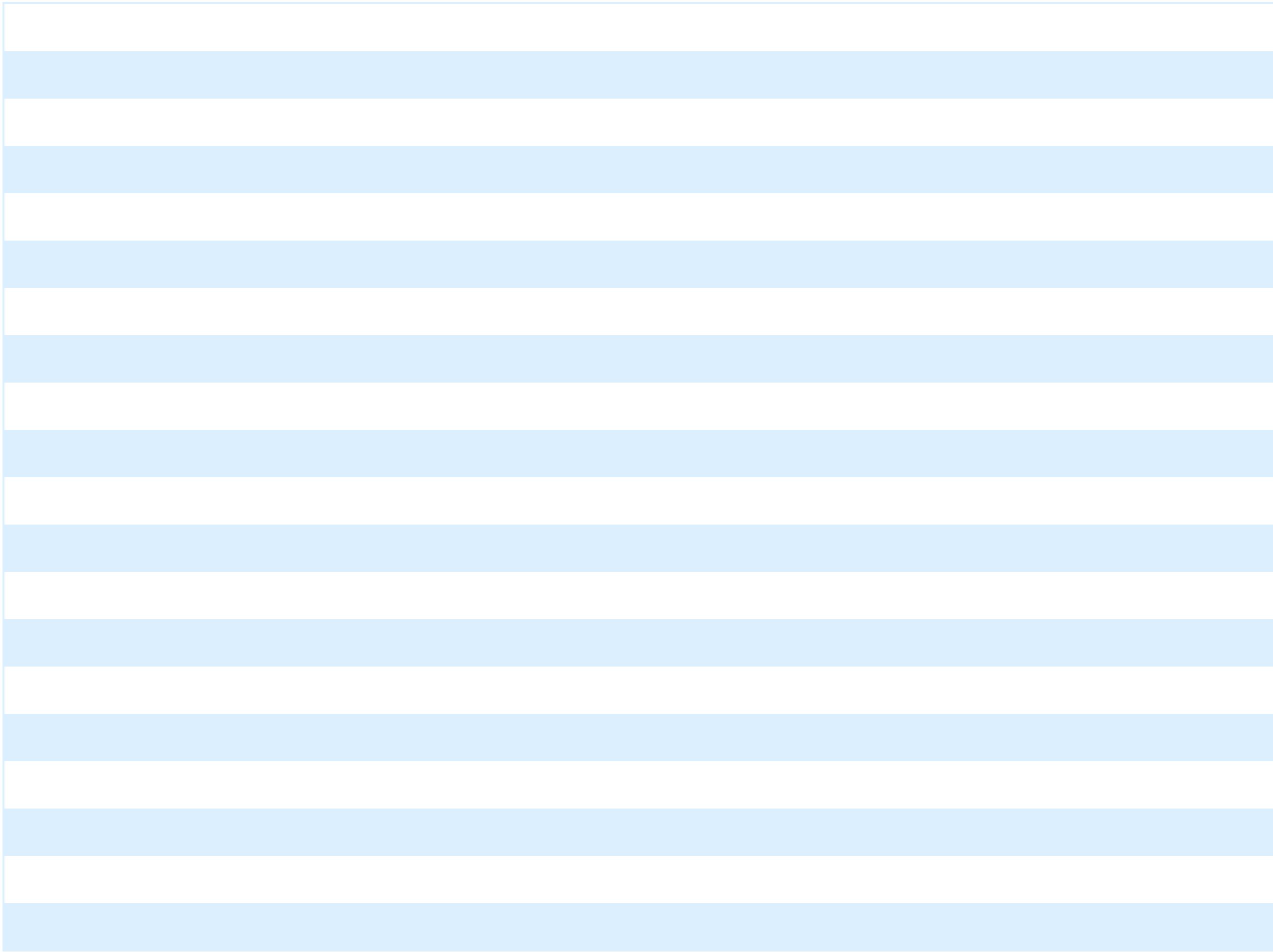
99971

99989

99991

9592 primes up to

99999 found



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