

TO: Distribution

FROM: M. S. Hodges

DATE: October 14, 1974

SUBJECT: Multics Change Requests

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MULTICS CHANGE REQUEST		MCR <u>753</u> Page <u>1</u> of <u>1</u> pages	
TITLE: Message Segment Changes for the Access Isolation Mechanism	STATUS		DATE
	Written	9/5/74	
AUTHOR: Jerry A. Stern	Approved		9-17-74
	Rejected		
SOURCE: (if external) e.g., "User", "Marketing"	Postponed		
	Withdrawn		
	Expires		3-17-75

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input checked="" type="checkbox"/> Incompatible Change	<input checked="" type="checkbox"/> Marketing Requirement	Implemented in System _____
<input checked="" type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input checked="" type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS:

Due to the addition of Access Isolation Mechanism controls to the storage system, the message segment facility will not be capable of supporting system-wide queues in a multiple access class system without the modification described in MTB-101.

Summary:

Implement those changes to the message segment facility, the storage system daemon programs, and user commands described in MTB-101. Eliminate message segment metering, but use the `syserr_log` to record message segment salvages, as decided at the design review.

Implications:

An incompatible change will be made to the message segment reading primitive in that these calls will return additional control information consisting of the message access class and sender authorization. However, this MCR proposes to change the affected commands and daemon programs so that no ill effects will occur.

Detailed Proposal:

See MTB-101. Concerning the use of `syserr`, a new entry in `admin_gate` will be used to call a new ring 0 program. This ring 0 program will call `syserr` after ensuring that the arguments supplied by ring 1 are safe, i.e., will not crash the system or cause other unwanted actions.

MULTI-CHANGE REQUEST		MCP <u>754</u> Page <u>1</u> of <u>1</u>
TITLE: Add meters to page control		STATUS
AUTHOR: Steve Webber		Written 9-6-74 Approved 9-17-74 Rejected
SOURCE: (if external) e.g., "User", "Marketing"		Postponed Withdrawn Expires 3-17-75

CLASSIFICATION	JUSTIFICATION	
Incompatible Change	Marketing Requirement	Replaced by proposal MCP _____
Extension	Conformance to Standard	Implemented in System _____
Restriction	Increased Consistency	Objections/Comments:
Performance Improvement	Simplification	
Reliability Improvement	Generalization	
	Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: There are several useful meters that could be added to page control that would give us more insight into the workings of the system.

- SUMMARY: Add the following meters:
- 1) count the number of times a page for a segment is on the paging device when the segment is activated.
 - 2) count the number of times a page is moved from the paging device after its segment has been deactivated.
 - 3) meter the cost of the hash lookup code for the paging device map used at segment activation time.
 - 4) meter the time spent in the system spent looping waiting for a file system device to become unbusy.
 - 5) change the "post_in_core" meter, a measure of working set size, to a histogram rather than a single average.
 - 6) create a new meter in the form of a histogram, which measures the number of page faults taken as a function of virtual CPU time since the faulting process was made eligible.

MULTICS CHANGE REQUEST		MCR <u>755</u>
TITLE: Modifications to the ALM assembler		STATUS
AUTHOR: Alan R. Downing		DATE
SOURCE: (if external; e.g., "User", "Marketing")		written <u>09/09/71</u>
		Approved <u>9-17-71</u>
		Rejected
		Postponed
		withdrawn
		Expires <u>3-17-74</u>

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Implemented in System
<input checked="" type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	Keep copy of old assembler in tools as old_alm!
<input checked="" type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
	<input checked="" type="checkbox"/> Unreported Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, and optionally DETAILED PROPOSAL

REASONS:

To convert the assembler to version 2 pl1. This is to permit better maintainability, and also to allow some recoding of programs to utilize version 2 pl1 features further increasing execution speed.

To fix bugs either reported or found during conversion; bugs fixed include, problem with 9 bit characters being used in acc, and aci strings. being able to specify the register in an address field separate from the offset part of the field with a variable previously defined by an equ.

To make some extensions to the assembler, namely: allowing the use of register names "pr0...pr7" in the address field. An optional field to the aci, acc, and bci pseudo-ops. This field specifies a length to which the assembler will pad the given string with the appropriate "blank" character for the pseudo-op being used. To allow a variable defined with either temp, or tempd to be used in the offset field of an address with a register other than pr0.

These modifications have been tested and are ready for submission.

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MULTI-CR CHANGE REQUEST		MCR <u>756</u> Page <u>1</u> of <u>1</u>
TITLE: <u>Fix bug in file dim</u>		STATUS
AUTHOR: <u>E. Stone</u>		Written <u>9-10-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>9-17-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>3-17-75</u>

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCR _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Performance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	Objections/Comments:
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix Unreported	
<input type="checkbox"/>	<input type="checkbox"/>	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: A side effect of installing a new version of `expand_path` was that the `gc` simulator stopped working. This is due to passing the file `dim` a pathname argument whose length is greater than 168 characters. The file `dim` behaves unintelligently in that it copies the pathname into a 168 character string, but takes the length of the pathname from the argument.

Other users of the file `dim` may encounter this undocumented restriction.

SUMMARY: Calculate length correctly.

MULTI-COMPILE PERMIT		MCP <u>757</u> Page <u>1</u> of <u>7</u>
TITLE: <u>Install bootstrapped p11 compiler</u>		STATUS
AUTHOR: <u>R.A. Barnes</u>		Written <u>9-9-74</u> Approved <u>9-17-74</u> Rejected
SOURCE: (if external) e.g., "User", "Marketing"		Postponed Withdrawn Expires <u>3-17-75</u>

CLASSIFICATION	JUSTIFICATION	
Incompatible Change	Marketing Requirement	Replaced by proposal MCP _____
Extension	Conformance to Standard	Implemented in System _____
Restriction	Increased Consistency	Objections/Comments: Note: Object code changes will cause compare object to claim discrepancies when code is correctly generated by both old and new versions of compiler. User community must be informed.
X Performance Improvement	Simplification	
X Reliability Improvement	Generalization	
	X Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: The new compiler fixes approximately 150 bugs and provides improved object code for programs that make quick procedure calls.

SUMMARY: The compiler fixes all starred (*) bugs on the accompanying listing of >doc>info>p11_status.info. For many calls to quick internal procedures, the compiler produces a constant list of ITP pointers to the arguments. This change has produced a 5-10% improvement in compile speed for p11. Object segment sizes and the system working set decrease with this change since calls with identical argument lists use the same constant list.

IMPLICATIONS: Improved performance and reliability since many serious bugs have been fixed.

This file contains Version 2 PL/I BUGS, PLANNED IMPROVEMENTS,
PLANNED LANGUAGE FEATURES, UNDIAGNOSED PROBLEMS, and FURTHER INFORMATION.

BUGS marked with * have been fixed in the experimental compiler located in
BUGS without * will, in general, exist in both the installed compiler and t
experimental compiler.

1222 next free number

- 1221*74.09.05 rab repeat operator uses x7, compiler thinks otherwise.
(affects copy, high, low).
- 1220 74.09.13 gdc substr(array,i,j) = copy(constant,j): gets FATAL ERROR 33
- 1219 74.08.29 gdc aggregate_fun() <op> aggregate_fun() fails -- bad code &
- 1218*74.08.29 rab (exl only) if string(st) = ... then if string(st) = ... e
else if string(st) = ... can get ERROR 313 + bad code if
optimized. bug in jump_op.
- 1217 74.08.28 rab bad code for more than one invocation of the same
returns(char_or_bit(*)) function in the same statement.
- 1216*74.08.27 rab a || varying_fun(...) || ... can fail if optimized becaus
incorrect length used in building a temporary. Bug in
operator_semantics.
- 1215 74.08.27 gdc x(i,*) = u(i,*) ; where x is based produces a temporary of
wrong size, possibly causing FATAL ERROR 30A.
- 1214*74.08.20 rab dasin_(0.1) fails because of bug 1213.
- 1213*74.08.20 rab abs(foo) fails if foo is in the 0 but the indicators are
set for foo.
- 1212 74.08.19 gdc varying_ch_array, ch_array = char(bit_varying_array); get
ERROR 313 (mprf 7603).
- 1211*74.08.15 rab end statement with no : causes fatal process error.
- 1210*74.08.13 gdc second error message is incorrect for more than one missi
end statement (mprf 7581).
- 1209*74.08.13 rab real_fixed_scaled = cplx_float + cplx_float; fails (mprf
- 1208*74.08.12 rab optimizer doesn't set externals at call with no args.
- 1207*74.08.08 rab (exl only) label_var = param_label_var gets bad code.
- 1206*74.08.08 rab substr(baseno(ptr),...) fails.
- 1205*74.08.06 gdc reserve list change: decimal_exo_ should be reducible.
- 1204*74.08.06 rab (stringrange); causes fault on string declared char(2**18
mprf7546.
- 1203*74.08.06 rab dcl 1 unal_str based(addr(unal_array(i))), gets bad addre
for some elements of unal_str.
- 1202*74.08.06 blw divide(fixbin71,fixbin71,35,0) loops in pl1_operators_ if
divisor is large and the dividend 1. (mprf 7543).
- 1201*74.08.06 blw divide(fixbin71,fixbin71,35,0) faults in pl1_operators_ i
divisor is large and the dividend 0. (mprfs 7542, 7543).
- 1200*74.08.06 gdc return(dimension(var_with_refer,1)); faults in builtin.
(mprf 7541).
- 1199*74.08.06 gdc complex(4.1389,589) fails: precision of result wrong.
(mprf 7547).
- 1198*74.08.06 rab if ""b ... and do while(""b); fail to work properly.
- 1197*74.08.06 gdc char(complex_decimal) fails (mprf 7539).
- 1196*74.07.05 rab fixed_unal = fixed(char_str,27); may fail.
- 1195*74.08.05 gdc on file_condition(nonfile) not diagnosed (mprf 7538).
- 1194*74.08.05 gdc in expanding an aggregate expression, a non-aggr expr tha
has been pulled outside of a loop may be overwritten insi
the loop (mprf 7535).
- 1193*74.08.01 gdc dcl foo(3) ptr init(addr(x),addr(y),*); gets fault at
runtime because foo(3) is assigned to itself.
- 1192*74.07.31 blw any_to_any_ not setting error location for default_error_t
when signalling conversion condition
- 1191*74.07.26 rab complex(short_floatbin_aggregate) gets fatal process error
7503).

1193*74.07.26 gdc real(decimal_array) fails because incorrect length used (m
1189*74.07.24 nab copy(s,var) where var = 0 fails to return null string.
(monf 7496).

1188*74.07.24 gdc dcl foo entry(char(*),fixed bin,(*)bit(9),fixed bin,(*)
bit(9),bit(72) aligned);call foo("a",0,"0"b,1,"00001010"b
var); gets ERRORS 312&315 or fault in semantics (mprf 7494

1187*74.07.23 pab put data; fails for varying arrays while put data(varying)
works!

1186*74.07.23 nab dcl c char(<8) auto|static unal;dcl cb char(<8) unal
based(ador(c)): references to cb are not padded while
references to c are. This is part of a more general
problem which has always existed and will not be
fixed quickly.

1185*74.07.20 nab bad relocation bits generated for EIS descriptors of args
to some decimal builtins.

1184*74.07.18 gdc put data(var_declared_by_implication): causes fatal proces
error.

1183*74.07.18 nab substr(int_static,1,parameter) can give bad addressing cod
1182*74.07.17 gdc scalar passed as arg to proc expecting dim(*) fails to be
promoted to array properly (mprf 7484).

1181*74.07.17 gdc after and before builtins fail for array arguments (mprf 7
7487).

1180*74.07.16 blw ext and int entry addresses not recorded correctly in
runtime symbol table.

1179*74.07.15 nab Use of complex fixed dec(>=32) in arith stmts fails due to
improper scale in EIS inst.

1178*74.07.15 gdc init of auto varying arrays fails because length words not
set. Caused by not setting varying_ref bit (mprf7439).

1177*74.07.15 nab subtract and add builtins fail for binary args if result
is scaled and does not have scale implied by precision rule
(mprf 7451).

1176*74.07.15 gdc implicit conversion of varying bit string to character fai
(mprf 7379).

1175*74.07.15 nab FATAL ERROR 336 when processing defined structure with tab
option (mprf 7363).

1174*74.07.15 nab put list(substr("00001111"b,2,4)); gets ERROR 333 (mprf 73
1173*74.07.12 nab translate(varying_str,var1,var2) fails (mprf 7390).

1172*74.07.12 blw dcl x pic "ssssssss9":x = -1: x = x+1; gets out_of_bounds
1171*74.07.12 blw mod(scaled_binary,0) faults due to bad return (mprf*7418).

1170*74.07.12 blw mod(scaled_binary,scaled_binary) fails (mprf*7419).

1169*74.07.12 gdc sqrt builtin fails for many (not all) cases of colx args
(mprf 7411).

1168*74.07.11 nab Use of complex decimal arith sometimes (rarely) causes
illegal_modifier condition in assign_op (mprf 7401).

1167*74.07.11 nab compiler does not realize that stream_lo, get_end, and
out_end operators flush x6.

1166*74.07.10 nab unal_str2 = unal_str1: if unal_str1 = "01"b ... sometimes
gets ERROR 313. This rare bug is caused by a deficiency in
save_value.

1165*74.07.01 gdc put list(y(2,1)); fails where y(3,3) defined(x(2sub,1sub))
1164*74.07.09 nab erroneous ERROR 315 for the statement:
(strg): k = fixed(substr(unspec(substr(c,i,1)),6,5),4):

1163*74.07.09 gdc sourious ERROR 179 for dcl 1 a(10), 2 x fixed bin: dcl
1 b defined(a(i)), ? y fixed bin; b.y = 8;

1162*74.07.09 nab c = -c; fails where c is complex decimal. (a = -c; works!)

1161*74.07.01 pab keyto implementation fails: compiler/runtime bug
1160*74.07.01 nab proc() returns((*)fixed bin): does not return properly,
causes subscriptrange condition. Also, element of
aggregate return_value addressed improperly.

1159*74.07.01 nab (size): has no effect on the statement put list(25+1/3);

the result is 2.533... instead of 25.333...

1158*74.07.01 rab a(1,*) = a(*,2) causes fixedoverflow on execution.
aggregate temporary is allocated within the loop rather than without.

1157*74.07.01 rab x=y where y(3,3) defined(x(2sub,1sub)); causes error 315

1156*74.06.20 blw symbol table entries built incorrectly for memb param st

1155*74.06.19 gdc out list(substr(STR, iscaled, iscaled)); either faults or bad code because 2nd and 3rd args of substr not converted integer.

1154*74.06.19 rab dcl vs char(12L) varying based(addr(varying_string)); gets bad access code for vs (mprf 7345).

1153*74.06.19 rab array(fixed(substr(unspec(substr(varying(i), 1, 1)), 3, 7), 1) gets ERROR 312 & 315.

1152*74.06.18 blw e_v has trouble encoding bound of array with refer extent

1151*74.06.17 gdc onchar builtin does not compare correctly with constant b passed_as_arg bit not set on temporary.

1150*74.06.17 rab pl1_operators_bug: return(bit(*)) returns zeroes (mprf 7323 7324).

1149*74.06.14 blw assign_ does not set support bit: this can cause erroneous identification of source of conversion signal.

1148*74.06.14 rab dcl bit_array(non_constant) bit(1) based unal; access code to element of array may be incorrect if longer than 2**16

1147*74.06.13 gdc copy(varying_bit_string, n) fails.

1146*74.06.13 gdc (EXL only) structa = structb(i + 1); produces bad code when structa has the same declaration as an element of structb.

1145*74.06.13 gdc second arg of copy builtin should be converted to bin int not just fixed oin (mprf 7330, 7331).

1144*74.06.13 gdc reverse(varying_bit_string) fails (mprf 7342).

1143*74.06.13 rab dcl str char(<expr>[*]) ...; dcl var char(length(str)) varying based: p -> var = str; gets ERROR 315.

1142*74.06.12 rab bad code for comparison with element of array of entry, label, or format vars.

1141*74.06.12 gdc addr(char_unal(i)) -> fixbin gets ERROR 332.

1140*74.06.12 rab KEYTO OPTION fails after RECORD condition signalled (mprf 7304)

1139*74.06.11 rab bool builtins fails with variable 3rd arg

1138*74.06.11 gdc translate(varying_parameter, ...) gets ERROR 313.

1137*74.06.10 rab Under rare circumstances rel(addr(unaligned_item)) can cause bad code to be generated LATER in the program (mprf 7304)

1136*74.06.10 gdc dcl foo entry(fixed bin(17) unal); call foo(<expr>); may fail because temporary created improperly.

1135*74.06.07 gdc stringrange fails for substr(str, 1, len)

1134*74.06.07 gdc dcl a(5) fixed bin init(1, (4)*); gets ERROR 292 (mprf 7304)

1133*74.06.06 rab conversion of packed pointer to offset fails.

1132*74.06.04 gdc problem in expand_assign for aggregate with two refer opt

1131*74.06.04 gdc dcl 1 st(10) auto unal, 2 a bit(36), 2 (b,c) fixed bin(17) 2 d char(1); causes ERROR 332 if a or b is used.

1130*74.06.04 gdc if a>&b then goto label: causes fault in the parse.

1129*74.06.04 rab freeing a controlled structure with adjustable extents can cause a fault in free_. pl1_operators_bug. (mprf 7271)

1128*74.06.03 gdc format stmt following a return stmt gets WARNING 56.

1127*74.06.03 gdc dcl 1 st(10) unal, 2 a bit(36), 2 b fixed bin, 2 c char(1) gets ERROR 332 in following stmt: a = "1010"b:

1126*74.06.03 rab trunc & cell builtins get IPP fault with decimal args (mprf 7266).

1125*74.06.03 gdc float_dec**large_constant fails (mprf 7264).

1124*74.06.03 gdc fixed(float_dec) gets ERROR 262 (mprf 7267).

1123*74.06.03 rab char_varying = char(fixedbin_8); fails. (mprf 7280).

1122*74.06.03 gdc sqrt("4+2i") fails (mprf 7279).

1121*74.05.30 rab ~ (a <op> b) gets ERROR 330 if a or b have length exprs

1120*74.05.24 rab floatbin63_unal = floatbin63; sometimes fails

1119*74.05.24 rab addr(varying_parameter) sometimes fails if optimizer used

1118*74.05.23 blw any_to_any_1: bit to char conversion fails for strings lo (morf 7221).

1117*74.05.22 rab get_data; fails if input variable is declared but not referenced in the program.

1116*74.05.21 gdc array(*) = scalar_fun(); where scalar_fun returns(fixed b gets ERROR 315.

1115*74.05.21 rab rel(addr(p -> foo)) can cause later ERROR 313 if optimize

1114*74.05.21 rab fixed(length(varying_str),24) fails.

1113*74.05.16 gdc call foo(char_star_fun()); fails if foo expects bit(*) be compiler forgets to perform conversion!

1112*74.05.16 blw any_to_any_ gets IP? instead of signalling conversion whe "i" to float bin (morf 7194).

1111*74.05.16 gdc (optimize only) call ioa_(foo,varying_str_fun(a),varying_ fails because length from first call used for both descri (morf 7197).

1110*74.05.16 gdc allocate foo in(based_area) set(offset); gets ERROR 313 (

1108*74.05.16 gdc call ioa_(char_star_fun()); gets ERROR 313.

1107*74.05.14 gdc allocation of a dimensional based array puts the compiler

1106*74.05.14 rab (ext only) call foo((varying_str_fun())) gets ERROR 32 an either ERROR 313 or fatal process error.

1105*74.05.14 gdc sum(fixbin_unal_array) gets ERROR 200/ cpl created sym ha unaligned bits on.

1104*74.05.14 gdc decimal_exp_ fails for (1) x = 0 and y <= 0 (2) x != 0 an

1103*74.05.13 gdc dcl x(1,3) fixed bin(17) unal init(2,100u,0); gets ERROR caused by assign_zero operator to unaligned target. Packed bit not set in symbol node of cpl created unal var

1102*74.05.08 rab use of read and write stmts to same file in same proc cau ERROR 313.

1101*74.05.07 rab variables known to ON-UNITS not being flushed from machine state at I/O or signal ops.

1100*74.05.07 rab if substr(str,a,b-a) = foo then go to label_var; bletch = substr(str,a,b-a); gets ERROR 315; bug in jump_op.

1099*74.05.06 blw exponent underflow in converting .1e+58b to internal rep

1098*74.05.03 rab dcl 1 str(*,*), b(*,*) char(*); length(b(1,1,1,1)) fails used in any context othe than right side of assignment str (morf 7148).

1097*74.05.03 gdc (low priority) dcl 1 z, 2 ins(0:1) bit(36), p entry(bit(*) returns(char(12) varying); z = p(ins(1)); gets ERROR 313. (morf 7149)

1096*74.05.03 rab substr(addr(char4_auto(i)) -> str,n,i) gets fatal process error due to bug in m_a.

1095*74.04.29 gdc allocate foo in(area) set(offset); causes loop in assign_ if it appears in different block than offset.

1094*74.04.29 gdc allocate foo in(area) set(auto_offset); fails because auto_offset given bad address due to invalid symbol copy.

1093*74.04.29 rab dcl 1 st(n) aligned, 2 (a,b,c) bit(m) unal; dcl bits bit(b based; addr(st(i).b) -> bits causes fatal process error in code generator. Bug in simplify_offset. Also, builtin defined_reference, and simplify_offset fail to properly copy reference.modword_in_offset when building defined reference.

1092*74.04.24 rab In very rare circumstances a word of storage may be simultaneously allocated to 2 different temps -- bug in ad_man\$save_ad.

1091*74.04.18 gdc 1**a fails where a is decimal because decimal_exp_ expects 1 to be float dec(59).

1090*74.04.18 gdc x**y fails for x and y decimal and y <= 0.

1089*74.04.18 blw dcl x pic"999999v99es99"; x = 1; gets fault at runtime

1088*74.04.18 blw any_to_any_ signals fault_tag_1 instead of conversion wher

assigning bad char to bit. Also, try compiling test484.
 1087*74.04.18 nab conversion to float bin of product of short fixed scaled
 with short fixed scaled const whose binary rep is 1 may 1
 Local optimization deletes mpy 1,d1 which would have
 cleared a register.
 1086*74.04.18 gdc s\$\$\$\$\$v\$\$, +\$\$\$999v999, and -\$\$\$\$yyvvy are mistakenly
 diagnosed as illegal pictures.
 1085*74.04.18 blw dcl str char(len) based(loc); where len and loc are
 members of a structure based on a parameter ptr gets
 a fault in m_a when compiled with table option
 (mprf 7041, 7045).
 1081*74.04.09 gdc sqrt(complex_float_bin) fails. Should generate call.
 Check other math builtins in complex cases.
 1080*74.04.09 gdc dcl str char(256) varying; str = convert(str,i) || str;
 ERROR 315 & 316.
 1079*74.04.09 nab substr(reverse(str),5,8) fails because c_offset is ignore
 Bug in prepare_operand.
 1077*74.04.03 gdc j = length(before(substr(p -> ptr_array(1) -> based_char_
 i+1),int_static_char_1_init)); gets FATAL ERROR 335 in re
 1076*74.04.02 nab scale factors in picture formats have no effect (mprf 699
 1073*74.03.31 gdc dcl bit bit(m) based; where m is parameter causes ERROR 3
 if bit is used with ~ operator or bool builtin.
 1072*74.03.29 blw validate_picture_ fails for pic "9v.99cr" (mprf 6935)
 1071*74.03.29 blw validate_picture_ fails for pic "-zv.9e-z9" (mprf 6943)
 1070*74.03.28 gdc fixed(unspec(substr(based_char_str,1,min(4,max(i,1)))))) c
 (mprf 6970).
 1068*74.03.28 blw unpack_picture_ fails for picture with trailing - with pc
 1066*74.03.26 nab In rare cases, if a structure is not referenced in a prog
 with table option, a FATAL ERROR 316 can occur (mprf 6956
 1063*74.03.25 blw picture editing fails for sssv.ssss (mprf 6931).
 1042*74.03.07 nab aggregate_string = based_string_with_adj_length;
 gets ERROR 336 (mprf 6863).
 1031*74.02.26 gdc Initialization of 2-dimensional unaligned fixed bin array
 fails. (mprf 6780).
 1006 74.01.29 nab into, from options and string, unspec builtins fail for a
 connected array reference whose declaration doesn't have
 own dimensions. This is a rare case. Example:
 dcl 1 st(3), 2 a fixed bin; write from(a); Note that st
 has no other members.
 990*74.01.12 nab declare_descriptor problems with descriptor templates for
 structure parameters: if the structure has some members w
 extents and other members declared fixed bin or float bin
 precision being supplied, the precision in the template (u
 new version of trace_stack) will be zero. Also the packed
 not be set correctly in the descriptor template. Note tha
 template is NOT used by the compiled program itself. If u
 descriptor passed by the caller.
 973*73.11.28 gdc a:proc(...) returns(bit(1));...;b:entry(...) returns(char(
 ...;return(substr(...)); gets ERROR 315 (mprf 6296).
 941*73.12.04 nab code_gen bug w optimizer: <expr> ... if foo then do: ...
 else do: ... <expr> ... end: If <expr> is not fully evalu
 to a temp before the if statement, and if the then clause
 or convert it, then incorrect code will be generated in th
 This happens only if the value of <expr> or its components
 This is a systematic problem in the code_generator and occ
 builtin, addr builtin, storing of some short unaligned str
 will require a major effort to fix correctly. Supplied te
 builtin. This bug has existed for several years. (mprf 6

SUGGESTED IMPROVEMENTS

1119 74.05.16 gdc %include statement on line 2 causes strange listing (mprf
1074*74.(4.01 rab return(char_or_bit(*)): doesn't set desc.type which may be
needed by some options(variable) routines. Note new loa_
not affected.

1033 74.02.26 gdc If the 2nd or 3rd argument of translate bif or 2nd argume
or verify bif is constant, the allocate bit in the symbol
be turned off so that the constant is only allocated if i
needed (mprf 6815).

977 73.12.28 gdc string(char_array(i,+)) gets ERPOP 272 (mprf 6367).

969 73.12.27 gdc compiler should diagnose use of illegal exprs in init attr
static vars (mprf 6154).

964 73.12.26 rab dcl mumble fixed bin: a &include statement: where statemer
complete declaration gets misleading error message in that
not printed (mprf 5843).

959 73.12.18 rab LEX: comments and blank lines should be allowed after log

946 73.12.05 rab symbol map listing should include file attributes, e.g., i

862 73.09.02 gdc dcl A(n,m) float bin based(p),B(n,m) float bin based(q);
A(i,*) = B(i,*)
generates assignment to temporary when
A(*,*) = B(*,*)
uses copy words operator directly into A. Furthermore, siz
of temporary used is wrong! Instead of allocating space f
one row (m words), space for entire array (n*m) words is
allocated!

587 72.10.06 blw put transfer vectors in listing (mprf 4877)

578 72.10.03 gdc suppress conversion message for refer(struct.bit) when subs

481 72.08.10 gdc (subrg): array = scalar; / can suppress range checking cod

428 72.07.10 gdc remove extra, unneeded assignment in subscript exp involvi

421 72.07.13 blw make two entries in profile for "if ... then ..."

346 72.06.03 pg print source statement on-line only once and limit number

322 72.05.18 acf validate should set error bit if dcl is incomplete or inva

280 72.05.11 gdc dcl a(101b) static; / misleading error message

277 72.05.11 gdc dcl lv label local static init(...); / no error message

276 72.05.11 gdc improve returning of unaligned items, particularly ptrs

244 73.01.19 rab constant expression involving division or non-integers are
not done at compile time

202 72.03.06 gdc name appears on several entry statements / error 213 is co

086 72.01.06 gdc x=f(); where f returns(varying)/can be optimized into call

FURTHER INFORMATION

When a problem is discovered, it is given a date and a serial number.
An attempt is made to produce a small test case which exhibits the problem.
The test cases are named testnnn.pl1 (where nnn is the problem serial number
and are kept in >ldd>exl>s>v2pl1.test.archive. If the short description of
an item in this file is not sufficient, the test case, if it exists,
may provide further information. In addition, the test cases are
used (albeit infrequently) to run regression tests on the compiler.
(END)

fmtloix command has been installed in >tools as a conversion aid in reforming
old pl1 record io files from fm_ to lox_ format.

MULTI-CHANGE REQUEST		MCP <u>758</u> Page <u>1</u> of <u>1</u>
TITLE: Operator's Console Recovery		STATUS: <u> </u>
AUTHOR: <u>Bill Silver</u>		Written <u>9-10-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>9-17-74</u>
		Rejected <u> </u>
		Postponed <u> </u>
		Withdrawn <u> </u>
		Expires <u>3-17-75</u>

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCP _____ Implemented in System _____
<input checked="" type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments: . . .
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input checked="" type="checkbox"/> Generalization	
<input type="checkbox"/>	<input type="checkbox"/> Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: To prevent the loss of syserr messages when the operator's console is inoperative. This change will also allow the operator's console to be detached for T & D testing.

SUMMARY: Changes have been made to the ring 0 console software, system_control, and the message coordinator.

IMPLICATIONS: As long as the message coordinator is running and at least one terminal is dialed to the initializer no operator's console is needed. This system will be installed in four phases.

1. Ring 0 operator's console software.
2. Message Coordinator
3. system_control
4. Minor change to message coordinator

DETAILED PROPOSAL: See MTB-072

MULTIPLY CHANGE REQUEST		NCP <u>759</u> Page <u>1 of 1</u>
TITLE: <u>Bug fix to tape_</u>		STATUS
AUTHOR: <u>Bill Silver</u>		Written <u>9-10-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>9-17-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>3-17-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal NCP _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	<input type="checkbox"/> Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix Unreported	
<input type="checkbox"/>	<input type="checkbox"/>	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: Bug may cause a fatal error when rewinding.

SUMMARY: Fix bug in tape_util_module of tape_. A call to tdcn to perform a request status command was not set up correctly.

MULTICS CHANGE REQUEST

MCR 760

TITLE: fix bug in full_command_processor_	STATUS	DATE
AUTHOR: Jay Goloman	Written	09/05/74
SOURCE: (if external; e.g., "User", "Marketing") MIT Programming Development Office	Approved	9-17-74
	Rejected	
	Postponed	
	Withdrawn	
	Expires	3-17-75

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible	<input type="checkbox"/> Marketing	<input checked="" type="checkbox"/> Replaced by proposal MCR
<input type="checkbox"/> Change	<input type="checkbox"/> Requirement	<input checked="" type="checkbox"/> Implemented in System
<input type="checkbox"/> Extension	<input checked="" type="checkbox"/> Conformance	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> its Standard	
<input checked="" type="checkbox"/> Performance	<input checked="" type="checkbox"/> Increased	
<input type="checkbox"/> Improvement	<input type="checkbox"/> Consistency	
<input checked="" type="checkbox"/> Reliability	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Improvement	<input type="checkbox"/> Generalization	
	<input checked="" type="checkbox"/> (Bug No. 322)	
	<input type="checkbox"/> Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, and optionally DETAILED PROPOSAL

REASONS:

The full_command_processor_ does not correctly handle an error code returned by proc_parens_. As coded, full_command_processor_ can write over stack frame headers eventually causing a fatal process error.

SUMMARY:

The program should be changed to ignore the length of the atom returned by proc_parens_ when the code 103 (i.e., the iteration set was exhausted) is returned. This variable (the length of the atom) is not set by proc_parens_ in this case.

The following modules will be converted to version 2 pl1:

- proc_parens_
- eval_ec_if_test_
- proc_quotes_

IMPLICATIONS:

The full_command_processor_ will be more efficient and not cause fatal process errors.

MULTICS CHANGE REQUEST

MCR 761
Page 1 of 1 Pages

TITLE: Bug fix to b_and_w

STATUS	DATE
Written	9/6/74
Approved	9-17-
Rejected	
Postponed	
Withdrawn	
Expires	3-17-75

AUTHOR: F. C. Smith

SOURCE: (if external) e.g., "User", "Marketing"

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____
<input type="checkbox"/> Extension	Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	Increased Consistency	Objections/Comments:
<input type="checkbox"/> Performance Improvement	Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	Unreported Bug Fix	
<input type="checkbox"/>		

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: On system black and white charts covering periods of time which overlap two different months, the wrong information is printed for days in the earlier month.

Summary: Correct b_and_w to print the correct information.

Implications: None.

MULTICS CHANGE REQUEST

MCR 762
Page 1 of 1 Pages

TITLE: Bug fix to system_monthly_report

STATUS	DATE
Written	9/6/74
Approved	9-17-74
Rejected	
Postponed	
Withdrawn	
Expires	3-17-75

AUTHOR: E. C. Smith

SOURCE: (if external) e.g., "User", "Marketing"

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	<input type="checkbox"/> Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Unreported Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: The total memory units printed on a monthly usage report is not correct.

Summary: Correct system_monthly_report to print the correct total.

Implications: None.

MULTICS CHANGE REQUEST		MCR <u>763</u> Page <u>1</u> of <u>1</u> Pages	
TITLE: Bug fix to punch_MIT_deck		STATUS	DATE
		Written	9/6/74
AUTHOR: <u>F. C. Smith</u>		Approved	<u>9-17-74</u>
		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
		Expires	<u>3-17-75</u>

CLASSIFICATION	JUSTIFICATION	REASON
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCR _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	Objections/Comments:
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input type="checkbox"/> Unreported	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: Negative monthly charges are not punched correctly on decks sent to the MIT accounting office.

Summary: Modify punch_MIT_deck to handle negative charges correctly.

Implications: None.

MULTI-CHANGE REQUEST	MCP <u>764</u> Page <u>1</u> of <u>1</u>
TITLE: <u>Fix bug in archive</u>	STATUS
AUTHOR: <u>Steve Herbst</u>	Written <u>9-11-74</u> Approved <u>9-17-74</u> Rejected
SOURCE: (if external) e.g., "User", "Marketing"	Postponed Withdrawn Expires <u>3-17-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCP _____
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input checked="" type="checkbox"/> Improvement		
	<input checked="" type="checkbox"/> Bug Fix Unreported	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: Per-component error code for a component whose corresponding entry does not exist in the storage system is not set when the archive does not exist either.

SUMMARY: Fix one line to pick up the code.

MULTIPLE CHANGE REQUEST		MCP <u>765</u>
		Page <u>1</u> of <u>1</u>
TITLE: Add "-fm" to list_ref_names		STATUS
AUTHOR: Steve Herbst		Written 9-11-74
SOURCE: (if external) e.g., "User", "Marketing"		Approved 9-17-74
		Rejected
		Postponed
		Withdrawn
		Expires 3-17-75

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCP _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	Objections/Comments:
<input checked="" type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input checked="" type="checkbox"/> Generalization	
<input type="checkbox"/>	<input type="checkbox"/> Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: list_ref_names accepts "-from" but not "-fm".

SUMMARY: Add "-fm" as a legal control argument.

2.1 -
1203

MULTIPLE CHANGE REQUEST		MCR <u>767</u> Page <u>1</u> of <u>1</u>
TITLE: <u>GCOS_DAEMON</u>		STATUS
AUTHOR: <u>RH Morrison</u>		Written <u>74090</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>9-24-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>9-24-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
Incompatible Change	Marketing Requirement	Fixes bug # - In
Extension	Conformance to Standard	Objections/Comments: .
Restriction	Increased Consistency	
Performance Improvement	Simplification	
Reliability Improvement	Generalization	
	X Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: Fix bugs found in systems testing.

SUMMARY: Install updated versions of: bound_gcos_daemon, bound_gcos_daemon_tls_, gcos_daemon_stat_.

IMPLICATIONS: None.

DETAILED PROPOSAL:

1. Change gcos_daemon_stat_ to specify >gdd instead of >ddd.
2. Change gcos_read_ to use Anonymous.GCOS.
3. Bug fix for gcos_read_tape_.
4. Change gcos_queue_job_ to restrict unique_name to 18 characters.
5. Change gcos_convert_sst to call com_err with "code" instead of "0".

BUGS FIXED: gcs (0013 0068 0070)p

MULTICS CHANGE REQUEST

MCR 768
Page 1 of 1 Pages

TITLE: Fix Multiple Argument Reference Security Holes

STATUS	DATE
Written	9/13/74
Approved	9-24-74
Rejected	
Postponed	
Withdrawn	
Expires	3-24-75

AUTHOR: Andrew Mason, C. S. R.

SOURCE: (if external) e.g., "User", "Marketing"

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____ Implemented in System _____
<input type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	X Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: Several programs in hardcore, notably `asd_` and `tty_write`, do not copy their arguments before using them. An oversight of this nature can cause a security hole because it is possible for the value of an argument to change while the hardcore program is running. This **can be done by careful construction** of an argument list which uses a combination of indirect and indexed - auto-increment addressing modes. For further details, see an upcoming RFC by H. C. Forsdick and D. P. Reed.

SUMMARY: Fix known bugs and review all user-accessible entries in hardcore to locate further bugs of this type.

IMPLICATIONS: None: plugs a possible security hole.

MULTIPLY CHANGE REQUEST		MCR <u>769</u>
		Page <u>1</u> of <u>1</u>
TITLE: Add name to hphcs_		STATUS
		Written <u>9-16-74</u>
AUTHOR: <u>Bill Silver</u>		Approved <u>9-24-74</u>
		Rejected
SOURCE: (if external) e.g., "User", "Marketing"		Postponed
		Withdrawn
		Expires <u>3-24-75</u>

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCR _____
<input checked="" type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	Objections/Comments:
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input checked="" type="checkbox"/> Generalization	
<input type="checkbox"/>	<input type="checkbox"/> Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: Needed for the orderly removal of tdcn from ring 0.

SUMMARY: The name tdcn_priv_ will be added to the gate hphcs_. Procedures which call tdcn via this gate will be changed to call the new name of the gate.

IMPLICATIONS: When tdcn is removed from ring 0 and replaced by the tdcn simulator, tdcn_, the name tdcn_priv_ will also be added to tdcn_. Thus all calls to tdcn via hphcs_ will automatically go to tdcn_.

MULTICS CHANGE REQUEST		MCR <u>770</u> Page <u>1</u> of <u>1</u> Pages
TITLE: Reliability improvements to NCP	STATUS	DATE
	Written	74.09.16
AUTHOR: <u>D. Wells</u>	Approved	<u>9-24-75</u>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	<u>3-24-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
	<input type="checkbox"/> Unreported	
	<input checked="" type="checkbox"/> Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

- REASONS:
- 1) There is a bug in ncp_access_ that will cause a process to loop indefinitely in hardcore.
 - 2) The NCP references an error_table_ status code that doesnt exist.
 - 3) Host-host message allocations are sometimes as low as 3, causing TIPS to sometimes refuse to transmit characters to Multics.

- SUMMARY
- 1) Fix bug in ncp-access_ to properly reset a variable.
 - 2) Correct the typing error, thus referencing the desired error_table_ code.
 - 3) Increase the message allocation, and alter the allocation updating mechansim to refresh the allocation to establish a four-fold buffering strategy.

MULTI-CHANGE REQUEST		MCP <u>771</u> Form <u>1-1-1</u>
TITLE: <u>Fix bug in ring_zero_dump</u>		STATUS
AUTHOR: <u>Steve Herbst</u>		Written <u>9-16-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>9-24-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>3-27-75</u>

CLASSIFICATION	JUSTIFICATION	
Incompatible Change	Marketing Requirement	Replaced by proposal MCP _____
Extension	Conformance to Standard	Implemented in System _____
Restriction	Increased Consistency	Objections/Comments:
X Performance Improvement	Simplification	
Reliability Improvement	Generalization	
	X Bug Fix #333	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: ring_zero_dump gets the bounds of what it is dumping from the bounds field of the SDW. If the segment has not been referenced, the SDW has not been filled in and the bounds is zero.

 ring_zero_dump says:

 "First location is past end of segment."

SUMMARY: Test the df bit in the SDW. If it is off, reference word 0 of the segment and pick up the bounds again.

MULTI-CHANGE REQUEST		MCR <u>772</u> Page <u>1</u> of <u>1</u>
TITLE: <u>Delete obsolete interfaces from hcs_.</u>		STATUS
AUTHOR: <u>Steve Webber</u>		Written <u>9-16-74</u> Approved <u>9-24-74</u> Rejected
SOURCE: (if external) e.g., "User", "Marketing"		Postponed Withdrawn Expires <u>3-24-75</u>

CLASSIFICATION	JUSTIFICATION	
<input checked="" type="checkbox"/> Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____ Implemented in System _____
<input type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	<input checked="" type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	Bug Fix	
<input type="checkbox"/>		

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: Several hcs_ entries are obsolete and should be removed. These entries are not used as far as can be determined (from gate meters over several weeks).
 The entries are:
 get_linkage
 get_count_linkage
 set_lp
 accept_alm_obj

By removing these entries the (hardcore) linker can be made faster and simpler in that it no longer need support the entries. The removal of the linker from ring 0 replaces some of these entries with new ones.

SUMMARY: Remove the entries from hcs_.

MULTIPLE CHANGE REQUEST		MCR <u>773</u> Page <u>1</u> of <u>1</u>
TITLE: Implement segment privilege in Access Isolation Mechanism		STATUS
AUTHOR: <u>A. Kobziar</u>		Written <u>9-13-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>9-24-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>9-24-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input checked="" type="checkbox"/> Marketing Requirement	Implemented in System _____
<input checked="" type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input type="checkbox"/> Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: A mechanism which gives privilege on a process-segment basis is required in order to avoid using the global segment privilege in processes (such as I/O drivers) which must skip AIM checking on a small number of Access Isolation Mechanism protected segments.

SUMMARY: Add a privileged entry to initiate which sets on a new bit in the KST entry. `seg_fault` will call either `access_mode$raw` (skip Access Isolation Mechanism) or `access_mode$security` depending on the setting of this bit.

DETAILED PROPOSAL:
KSTE inferior count field will be decreased from 14 to 12 bits, to provide for a pad bit and a privileged initiate bit. The pad bit is for possible future use. The setting of `KSTE.privilege` will be done by a new procedure: `set_kste_priv` which will set the bit on and fault the SDW for the segment (and remove this process' trailer) if necessary.

MULTICS CHANGE REQUEST

MCR 774
Page 1 of 1 Pages

TITLE: Fix bug 327 in daily_summary_

STATUS	DATE
Written	09/17/74

AUTHOR: Janice B. Phillipps

Approved	9-21-74
Rejected	

SOURCE: (if external) e.g., "User", "Marketing"
MIT (PDO)

Postponed	
Withdrawn	
Expires	3-21-75

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCR _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	Objections/Comments:
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix #327	
<input type="checkbox"/>		

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: daily_summary currently produces a total revenue of several million dollars.

SUMMARY: initialize total to zero

IMPLICATIONS: none (fixed version is currently in >add>SysAdmin>lib)

MULTIPLY CHANGE REQUEST		MCR <u>775</u> Page <u>1 of 1</u>
TITLE: Rewrite ACL commands		STATUS
AUTHOR: Steve Herbst		Written 9-18-74 Approved 9-24-74 Rejected
SOURCE: (if external) e.g., "User", "Marketing"		Postponed Withdrawn Expires 3-24-75

CLASSIFICATION	JUSTIFICATION	
Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____ Implemented in System _____
Extension	Conformance to Standard	Objections/Comments:
Restriction	Increased Consistency	
X Performance Improvement	Simplification	
Reliability Improvement	X Generalization	
	Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: Implementing the new matching strategy (MCR-720) affords a good opportunity to rewrite the module (acl_commands) that does the regular ACL commands. acl_commands contains some confusing code and is hard to understand.

SUMMARY: Replace acl_commands with the module set_acl, which performs the same functions as the old, with the addition of the new matching strategy.

MULTIPLE CHANGE REQUEST		NCR <u>776</u>
		Page <u>1</u> of <u>1</u>
TITLE: <u>Fix Reloader Bugs</u>		STATUS
AUTHOR: <u>R. Mullen</u>		Written <u>9-19-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>9-24-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>3-24-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal NCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	<input type="checkbox"/> Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix Unreported	
<input type="checkbox"/>	<input type="checkbox"/>	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

- REASONS:
1. Fix backup_record types.incl.pl. so maps will be correct for upcoming new record types.
 2. Fix bk_retrieve so it will not get OOB while searching control file. (Fix known and patched at MIT.)

MULTI-STEP CHANGE REQUEST		MCR 777
		Page 1 of 1
TITLE: Fix bug in message_segment_gate		STATUS
AUTHOR: Steve Herbst		Written 9/20/74
		Approved 9-24-74
		Rejected
SOURCE: (if external) e.g., "User", "Marketing"		Postponed
		Withdrawn
		Expires 3-24-75

CLASSIFICATION	JUSTIFICATION	
Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____
Extension	Conformance to Standard	Implemented in System _____
Restriction	Increased Consistency	Objections/Comments:
Performance Improvement	Simplification	
Reliability Improvement	Generalization	
	X unreported Bug Fix	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, DETAILED PROPOSAL (Optional)

REASONS: The gate message_segment_ contains a typographical error causing a call to the entry own_incremental_read_index to be passed to a non-existent entry q_o_incremental_index.

SUMMARY: Change the latter to q_o_incremental_read_index.