

.REM

IDENTIFICATION

PRODUCT CODE: AC-P0639-MC
 PRODUCT NAME: CY8MERO BM873-YF MODULE
 PRODUCT DATE: SEPTEMBER 1979
 MAINTAINER: DEC/X11 SUPPORT GROUP

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1.0 ABSTRACT

BME IS A BACKGROUND MODULE THAT EXERCISES A SINGLE BM873-YF BOOTSTRAP ROM OPTION. IT COMPARES THE CONTENTS OF EACH OF THE 256(10) LOCATIONS STORED IN THE ROM WITH THE CONTENTS OF A 256(10) WORD CORE MEMORY BUFFER TO VERIFY THAT EACH LOCATION IN THE ROM CAN BE UNIQUELY ADDRESSSED AND CONTAINS THE CORRECT DATA. ALL ERRORS ARE REPORTED VIA THE CONSOLE DEVICE.

2.0 REQUIREMENTS

HARDWARE: A PDP11 COMPUTER WITH A BM873-YF OPTION
 STORAGE: BME REQUIRES:
 1. DECIMAL WORDS: 368
 2. OCTAL WORDS: 0560
 3. OCTAL BYTES: 1340

3.0 PASS DEFINITION

THE INITIAL PASS CONSISTS OF EXECUTING THE BASIC TEST SEQUENCE THE TIME BEFORE REPORTING END OF PASS. SUBSEQUENT PASSES OF THE BMDA MODULE CONSISTS OF 100(8) ITERATIONS OF THE BASIC TEST SEQUENCE DESCRIBED IN PARA. 7 BELOW.

4.0 EXECUTION TIME

PASS TIME VARIES DEPENDENT UPON CPU TYPE AND THE CONFIGURATION BEING EXERCISED. WHEN RUNNING ALONE ON A PDP11/40 THE FIRST PASS SHOULD TAKE LESS THAN 10 SECONDS AND SUBSEQUENT PASSES LESS THAN ONE MINUTE.

5.0 CONFIGURATION OPTIONS

DEFAULT PARAMETERS:
 DVA: 173000
 REQUIRED PARAMETERS:
 NONE

6.0 DEVICE OPTION SETUP

NONE REQUIRED

7.0 MODULE OPERATION

TEST SEQUENCE:

1. R1 IS SET UP TO POINT TO THE FIRST WORD IN THE ROM
2. R2 IS SET UP TO POINT TO THE CORRESPONDING WORD IN THE CORE MEMORY BUFFER.
- THE ADDRESS IN R1 IS CHECKED FOR EQUALITY TO EITHER 173024 OR 173224 AND IF FOUND EQUAL GOES TO STEP (5) - IF NOT IT PROCEEDS WITH STEP (3). THESE TWO ADDRESSES ARE NOT CHECKED BECAUSE THEIR CONTENTS AS READ ON THE BUS WILL VARY DEPENDENT UPON WHICH PARTICULAR "LOAD" BUTTON HAD BEEN INITIALLY DEPRESSED TO LOAD THE PROGRAM.
3. R1 AND R2 ARE USED TO COMPARE A ROM WORD WITH ITS CORE IMAGE COUNTERPART. IF THE WORDS DON'T COMPARE A SUB-ROUTINE IS CALLED TO SET UP THE ERROR INFORMATION AND REPORT IT VIA A "DATA" CALL TO THE MONITOR.
4. STEP (3) IS REPEATED.
5. R1 AND R2 ARE UPDATED TO POINT TO THE NEXT WORD AND A TEST MADE ON R2 TO SEE IF 256(10) WORDS HAVE BEEN CHECKED. IF YES, GO TO STEP (6) IF NOT REPEAT (3) THRU (5).
6. A PASS COUNTER IS DECREMENTED AND TESTED TO SEE IF 100(8) ITERATIONS OF STEPS (1) THRU (5) HAVE OCCURRED - IF YES GO TO STEP (7) IF NOT REPEAT (1) THRU (5).
7. REPORT END OF PASS AND REPEAT (1) THRU (6).

8.0 OPERATOR OPTIONS

 (NONE)
 9.0 NON-STANDARD PRINTOUTS

 (NONE)

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000000* JMW0D <RMEB > 173000,0,0,0,100,154
000000* MODULE 40020,BME9 173000,0,0,0,100,154
          , TITLE BME9 DEC/X11 SYSTEM EXERCISER MODULE
          , DDXCOM VERSION 6 23-MAY-78
          , LIST BIN
*****
000000* BEGIN:
000000* 046502 041105 040 MODNAM: .ASCII /RMEB / ;MODULE NAME.
000000* 000005 000 XFLAG: .BYTE OPEN USED TO KEEP TRACK OF WBNFF USAGE
000000* 000006 173000 ADDR: 173000+0 ;1ST DEVICE ADDR.
000000* 000010 000000 VECTOP: 0+0 ;1ST DEVICE VECTOR.
000000* 000012 000 R1: .BYTE PRTV0+0 ;1ST RR LEVEL.
000000* 000013 000 R2: .BYTE PRTV0+0 ;2ND RR LEVEL.
000000* 000014 000001 DIVD1: 0+0 ;DEVICE INDICATOR 1.
000000* 000015 000000 SR1: OPEN ;SWITCH REGISTER 1.
000000* 000020 000000 SR2: OPEN ;SWITCH REGISTER 2.
000000* 000022 000000 SR3: OPEN ;SWITCH REGISTER 3.
000000* 000024 000000 SR4: OPEN ;SWITCH REGISTER 4.
*****
000026* 040020 STAT: 40020 ;STATUS WORD.
000030* 000224* INIT: START ;MODULE START ADDR.
000032* 000224* SPOINT: MODSP ;MODULE STACK POINTER.
000034* 000000 PASCNT: 0 ;PASS COUNTER.
000036* 000100 LCOUNT: 100 ;# OF ITERATIONS PER PASS=100
000040* 000000 SOFCNT: 0 ;LOC TO COUNT ITERATIONS
000042* 000000 HRDCNT: 0 ;LOC TO SAVE TOTAL SOFT ERRORS
000044* 000000 SOFPAS: 0 ;LOC TO SAVE TOTAL HARD ERRORS
000046* 000000 HRDPAS: 0 ;LOC TO SAVE SOFT ERRORS PER PASS
000050* 000000 SYSCNT: 0 ;# OF SYS ERRORS ACCUMULATED
000052* 000000 RANRNUM: 0 ;HOLDS RANDOM # WHEN RAND MACRO IS CALLED
000054* 000000
000056* 000000 CONFIG:
000058* 000000 RES1: 0 ;RESERVED FOR MONITOR USE
000060* 000000 RES2: 0 ;RESERVED FOR MONITOR USE
000062* 000000 SVR0: OPEN ;RESERVED FOR MONITOR USE
000064* 000000 SVR1: OPEN ;LOC TO SAVE R0.
000066* 000000 SVR2: OPEN ;LOC TO SAVE R1.
000068* 000000 SVR3: OPEN ;LOC TO SAVE R2.
000070* 000000 SVR4: OPEN ;LOC TO SAVE R3.
000072* 000000 SVR5: OPEN ;LOC TO SAVE R4.
000074* 000000 SVR6: OPEN ;LOC TO SAVE R5.
000076* 000000 CSRA: OPEN ;LOC TO SAVE R6.
000100* 000000 SBADR: OPEN ;ADDR OF CURRENT CSR.
000102* 000000 ACSR: OPEN ;ADDR OF GOOD DATA, OP
000104* 000000 WASADR: OPEN ;CONTENTS OF CSR.
000106* 000000 ASAT: OPEN ;ADDR OF BAD DATA, OR
000108* 000000 ASATVP: OPEN ;STATUS REG CONTENTS.
000110* 000000 ASB: OPEN ;TYPE OF ERROR.
000112* 000000 AWAS: OPEN ;EXPECTED DATA.
000114* 000000 RSTRT: RSTRT ;ACTUAL DATA.
000116* 000000 WTRT: OPEN ;RESTART ADDRESS AFTER END OF PASS
000118* 000000 WDR: OPEN ;WORDS TO MEMORY PER ITERATION
000120* 000000 INTR: OPEN ;WORDS FROM MEMORY PER ITERATION
000122* 000154 IDNUM: 154 ;# OF INTERRUPTS PER ITERATION
          , SPSIZ ;MODULE IDENTIFICATION NUMBER=154
          , NLIST ;MODULE STACK STARTS HERE.

```

000224*

.WORD 0
.LIST
.ENDR
MODSP:*****

203
204 000224* 016705 177556
205
206 000230* 010501
207 000232* 012702 000336*
208 000236* 022701 173024
209 000242* 001411
210 000244* 022701 173224
211 000250* 001410
212 000252* 021112
213 000254* 001405
214 000256* 004767
215 000262* 021112
216 000264* 001402
217 000266* 004767 000026
218 000272* 022122
219 000274* 022702 001336*
220 000300* 001356
221 000302* 104413 000000*
222
223 000306* 000750
224
225
226
227
228
229
230 000310* 010267 177566
231 000314* 010167 177564
232 000320* 011167 177564
233 000324* 011267 177556
234
235 000330* 104404 000909*
236
237 000334* 000207
238
239
240
241
242 000336* 010037
243 000340* 000940
244 000342* 013700
245 000344* 177570
246 000346* 032700
247 000350* 000001
248 000352* 001007
249 000354* 000557
250 000356* 005000
251 000360* 000404
252 000362* 173000
253 000364* 000340
254 000366* 012700
255 000370* 000200
256 000372* 010005
257 000374* 106300
258 000376* 122700

START: MOV ADDR,R5 ;GET FIRST ROM ADDRESS INTO R5
RESTART:
AGAIN: MOV R5,R1 ;R1 POINTS TO ROM WORD
MOV #RMTAB,R2 ;R2 POINTS TO ROM IMAGE IN CORE
1S: CMP #173024,R1 ;ROM ADDRESS = 173024 ??
BEQ 3S ;RR IF YES
CMP #173224,R1 ;ROM ADDRESS = 173224 ??
BEQ 3S ;RR IF YES
CMP (R1),(R2) ;CHECK ONE LOCATION
BEQ 2S ;RR IF (ROM) = (CORE)
PC,BMERR ;GO SETUP AND REPORT ERROR
2S: CMP (R1),(R2) ;CHECK IT AGAIN
BEQ 3S ;RR IF (ROM) = (CORE)
PC,BMERR ;GO SETUP AND REPORT ERROR
3S: CMP (R1),(R2) ;ADD *2 TO BOTH POINTERS
TAREND,R2 ;DONE LAST WORD ??
BNE 1S ;RR IF NOT
4S: ENDTAB,REGIN ;SIGNAL END OF ITERATION.
BR AGAIN ;MONITOR SHALL TEST END OF PASS

;THIS ROUTINE SETS UP AND REPORTS ALL DATA COMPARE ERRORS
BMERR: MOV R2,SBADR ;SAVE THE ADDR. OF GOOD DATA
MOV R1,WASADR ;SAVE ADDR. OF THE BAD DATA
MOV (R1),WAS ;GET WAS DATA
MOV (R2),ASB ;GET THE S/R DATA
;*****
DATERS,REGIN ;DATA ERROR!!!
;*****
RTS PC ;CONTINUE CHECKING

;256(10) WORD TABLE THAT STORES A CORE IMAGE OF THE CONTENTS OF THE ROM
BMTAB: 010037 ;CONTENTS OF LOCATION 173000
000940 ;CONTENTS OF LOCATION 173002
013700 ;ETC.
177570
032700
000001
001007
000557
005000
000404
173000
000340
012700
000200
010005
106300
122700

259	000400	000340	000140
260	000400	000400	001144
261	000404	002700	002700
262	000406	000060	000060
263	000410	001001	001001
264	000412	005000	005000
265	000414	000300	000300
266	000416	042700	042700
267	000420	177770	177770
268	000422	052700	052700
269	000424	000500	000500
270	000426	012703	012703
271	000430	000401	000401
272	000434	005700	005700
273	000436	001402	001402
274	000438	012700	012700
275	000440	000020	000020
276	000442	052700	052700
277	000444	000007	000007
278	000446	012706	012706
279	000450	000012	000012
280	000452	012701	012701
281	000454	005705	005705
282	000456	005705	005705
283	000460	100402	100402
284	000462	005306	005306
285	000464	005705	005705
286	000466	000005	000005
287	000470	005004	005004
288	000472	010302	010302
289	000474	032711	032711
290	000476	000040	000040
291	000500	001775	001775
292	000502	005700	005700
293	000504	100454	100454
294	000506	100011	100011
295	000510	105711	105711
296	000512	100376	100376
297	000514	110261	110261
298	000516	000002	000002
299	000520	105711	105711
300	000522	100376	100376
301	000524	000302	000302
302	000526	110261	110261
303	000530	000002	000002
304	000532	000302	000302
305	000534	032711	032711
306	000536	100040	100040
307	000540	001775	001775
308	000542	100745	100745
309	000544	005700	005700
310	000546	100402	100402
311	000550	012711	012711
312	000552	000003	000003
313	000554	132711	132711
314	000556	000240	000240

315	000560	000402	000402
316	000562	173000	173000
317	000564	000340	000340
318	000566	001772	001772
319	000570	100003	100003
320	000572	116124	116124
321	000574	000002	000002
322	000576	000766	000766
323	000600	122222	122222
324	000602	022704	022704
325	000604	001400	001400
326	000606	001330	001330
327	000610	005007	005007
328	000612	005702	005702
329	000614	122702	122702
330	000616	000032	000032
331	000620	103003	103003
332	000622	105002	105002
333	000624	062702	062702
334	000626	000401	000401
335	000630	022704	022704
336	000632	160000	160000
337	000634	101416	101416
338	000636	012711	012711
339	000640	000001	000001
340	000642	132711	132711
341	000644	000240	000240
342	000646	001775	001775
343	000650	100316	100316
344	000652	112461	112461
345	000654	000002	000002
346	000656	000771	000771
347	000660	012711	012711
348	000662	000017	000017
349	000664	032711	032711
350	000666	000040	000040
351	000670	001775	001775
352	000672	016100	016100
353	000674	000002	000002
354	000676	000476	000476
355	000700	012703	012703
356	000702	035401	035401
357	000704	012700	012700
358	000706	100005	100005
359	000710	005005	005005
360	000712	000655	000655
361	000714	010037	010037
362	000716	000056	000056
363	000720	012700	012700
364	000722	000056	000056
365	000724	010640	010640
366	000726	010540	010540
367	000730	010440	010440
368	000732	010340	010340
369	000734	010240	010240
370	000736	010140	010140

171	000740*	014000	014000
172	000742*	000177	000177
173	000744*	004446	004446
174	000745*	005002	005002
175	000750*	005003	005003
176	000752*	052700	052700
177	000754*	034400	034400
178	000756*	012704	012704
179	000757*	117400	117400
180	000762*	012706	012706
181	000764*	000012	000012
182	000766*	012701	012701
183	000770*	117000	117000
184	000772*	005705	005705
185	000774*	100402	100402
186	000776*	005306	005306
187	001000*	002437	002437
188	001002*	000005	000005
189	001004*	110061	110061
190	001006*	000010	000010
191	001010*	032711	032711
192	001012*	004000	004000
193	001014*	001766	001766
194	001016*	012711	012711
195	001020*	000021	000021
196	001022*	010261	010261
197	001024*	000634	000634
198	001026*	010361	010361
199	01030*	000006	000006
200	001032*	010461	010461
401	001034*	000002	000002
402	001036*	000300	000300
403	001040*	110011	110011
404	001042*	000300	000300
405	001044*	105711	105711
406	001046*	100376	100376
407	001050*	032711	032711
408	001052*	060000	060000
409	001054*	001346	001346
410	001056*	032761	032761
411	001060*	140000	140000
412	001062*	000012	000012
413	001064*	001342	001342
414	001066*	005700	005700
415	001070*	100249	100249
416	001072*	005000	005000
417	001074*	000000	000000
418	001076*	000776	000776
419	001100*	016100	016100
420	001102*	000012	000012
421	001104*	000043	000043
422	001106*	012702	012702
423	001110*	000631	000631
424	001112*	012703	012703
425	001114*	006410	006410
426	001116*	012700	012700

427	001120*	130400	130400
428	001122*	012704	012704
429	001124*	110000	110000
430	001126*	005005	005005
431	001130*	000714	000714
432	001132*	010037	010037
433	001134*	000040	000040
434	001136*	012700	012700
435	001140*	115606	115606
436	001142*	000664	000664
437	001144*	005005	005005
438	001146*	012500	012500
439	001150*	012501	012501
440	001152*	011502	011502
441	001154*	012725	012725
442	001156*	173634	173634
443	001160*	011503	011503
444	001162*	011715	011715
445	001164*	000340	000340
446	001166*	012704	012704
447	001170*	117400	117400
448	001172*	012706	012706
449	001174*	000004	000004
450	001176*	062704	062704
451	001200*	000040	000040
452	001202*	105704	105704
453	001204*	100770	100770
454	001206*	032764	032764
455	001210*	004000	004000
456	001212*	000034	000034
457	001214*	001770	001770
458	001216*	026417	026417
459	001220*	000014	000014
460	001222*	001365	001365
461	001224*	010315	010315
462	001226*	010245	010245
463	001230*	010145	010145
464	001232*	010045	010045
465	001234*	012700	012700
466	001236*	000130	000130
467	001240*	012700	012700
468	001242*	012700	012700
469	001244*	000156	000156
470	001246*	103374	103374
471	001250*	005724	005724
472	001252*	010401	010401
473	001254*	012700	012700
474	001256*	000100	000100
475	001260*	010021	010021
476	001262*	005061	005061
477	001264*	177744	177744
478	001266*	005061	005061
479	001270*	177764	177764
480	001272*	032711	032711
481	001274*	004000	004000
482	001276*	001775	001775

483	001300	010014	010014
484	001302	005961	005961
485	001304	177766	177766
486	001306	012761	012761
487	001310	107400	107400
488	001312	177762	177762
489	001314	032711	032711
490	001316	004000	004000
491	001320	001775	001775
492	001322	010014	010014
493	001324	012705	012705
494	001326	100000	100000
495	001330	005007	005007
496	001332	000000	000000
497	001334	000000	000000
498	001336	177777	177777
499		000001	000001

TABEND: 177777
END

ACSR	000102R	195#	
ADDR	000006R	151#	
ADDR27	001000	203#	204
ACAIN	000230R	207#	225
ASB	000106R	189#	213*
ASAT	000104R	187#	
ASAS	000110R	190#	232*
BFCIN	000000R	148#	223
BIT0	000001	203#	235
BIT1	000002	203#	
BIT10	002000	203#	
BIT11	004000	203#	
BIT12	010000	203#	
BIT13	020000	203#	
BIT14	040000	203#	
BIT15	100000	203#	
BIT2	000004	203#	
BIT3	000010	203#	
BIT4	000020	203#	
BIT5	000040	203#	
BIT6	000100	203#	
BIT7	000200	203#	
BIT8	000400	203#	
BIT9	001000	203#	
BWERR	000310R	215#	218
BWFA8	000736R	203#	242#
BWFA8S	104407	203#	
BRI	000012R	153#	
BRT	000013R	154#	
BRTDS	104421	203#	
CATAS	104425	203#	
CONFIC	000056R	173#	
CSRA	000100R	183#	
DATCKS	104411	203#	235
DATERS	104404	203#	
DVID1	000014R	155#	273
ENDITS	104413	203#	
ENDS	104410	203#	
ERRTYP	000106R	188#	
EXITS	104402	203#	
GETPAS	104415	203#	
GWRUPS	104414	203#	
HRDCNT	000044R	163#	
HRDERS	104405	203#	
HRDPAS	000050R	170#	
ICONT	000036R	165#	
ICOUNT	000040R	166#	
IONUM	000122R	195#	
INIT	000030R	162#	
INIS	000120R	194#	
MAP22S	104416	203#	
MODNAM	000000R	149#	201#
MODSP	000224R	163#	
MSGNS	104403	203#	
MSGSS	104402	203#	
MSGCS	104401	203#	

NULC = 000000	203#																	
OPEN = 000000	150																	
	187	156	157	158	159	176	177	178	179	180	181	182	183					
UTGAS = 104420	203#																	
PASCNT = 000034R	164#																	
PIROS = 000004	203#																	
POPSP = 005726	203#																	
POPSP2 = 022626	203#																	
PRTV = 000000	203#																	
PRTV0 = 000000	153																	
PRTV1 = 000040	203#	154	203#															
PRTV2 = 000100	203#																	
PRTV3 = 000140	203#																	
PRTV4 = 000200	203#																	
PRTV5 = 000740	203#																	
PRTV6 = 000300	203#																	
PRTV7 = 000340	203#																	
PSW = 177776	203#																	
PISSH = 005746	203#																	
PUS42 = 024646	203#																	
KANNS = 104417	203#																	
KANNUW = 000054R	172#																	
RSSSTR = 000230R	191																	
RFS1 = 000056R	174#																	
RFS2 = 000060R	175#																	
RSTOT = 000112R	191#																	
SQADR = 000102R	184#																	
SOPCNT = 000042R	167#																	
SJFRK = 104406	203#																	
SNPAS = 000046R	169#																	
SPOINT = 000032R	163#																	
SPSIZ = 000040	1#																	
SR1 = 000016R	156#																	
SR2 = 000020R	157#																	
SR3 = 000022R	158#																	
SR4 = 000024R	159#																	
STARZ = 000224R	162																	
STAT = 000026R	161#																	
SVR0 = 000062R	178#																	
SVR1 = 000064R	177#																	
SVR2 = 000066R	178#																	
SVR3 = 000070R	179#																	
SVR4 = 000072R	180#																	
SVR5 = 000074R	181#																	
SVR6 = 000076R	182#																	
SVSCNT = 000052R	171#																	
TAREND = 001336R	220																	
TRPDND = 000022	203#																	
VSCUR = 000010R	152#																	
WASADP = 000104R	186#																	
WDPD = 000116R	193#																	
WDTN = 000114R	192#																	
XPLAG = 000005R	150#																	

. A9S. 000000 000
 001140 001

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

XBWER0,XRMFB0/SOL/CRF:SYM=DDXCOM,XRMFB0
 RUN-TIME: 11.2 SECONDS
 RUN-TIME RATIO: 18/3=5.8
 CORR USED: 7K (13 PAGES)