

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				2 *****
				3 *
				4 * Zvector E6 instruction tests for VRR-g encoded:
				5 *
				6 * E65F VTP - VECTOR TEST DECIMAL
				7 *
				8 * James Wekel June 2024
				9 *****
				10
				11 *****
				12 *
				13 * basic instruction tests
				14 *
				15 *****
				16 * This program tests proper functioning of the z/arch E6 VRR-g vector
				17 * test decimal. Exceptions are not tested.
				18 *
				19 * PLEASE NOTE that the tests are very SIMPLE TESTS designed to catch
				20 * obvious coding errors. None of the tests are thorough. They are
				21 * NOT designed to test all aspects of any of the instructions.
				22 *
				23 *****
				24 *
				25 * *Testcase zvector-e6-14-testdecimal: VECTOR E6 VRR-g instruction
				26 * *
				27 * * Zvector E6 tests for VRR-g encoded instruction:
				28 * *
				29 * * E65F VTP - VECTOR TEST DECIMAL
				30 * *
				31 * * # -----
				32 * * # This tests only the basic function of the instruction.
				33 * * # Exceptions are NOT tested.
				34 * * # -----
				35 * *
				36 * main size 2
				37 * numcpu 1
				38 * sysclear
				39 * archlvl z/Arch
				40 *
				41 * diag8cmd enable # (needed for messages to Hercules console)
				42 * loadcore "\$(testpath)/zvector-e6-14-testdecimal.core" 0x0
				43 * diag8cmd disable # (reset back to default)
				44 *
				45 * *Done
				46
				47 *****
00000000		00000000	000013BB	49 ZVE6TST START 0
		00000000		50 USING ZVE6TST, R0 Low core addressability
				51
		00000140	00000000	52 SV0LDPSW EQU ZVE6TST+X' 140' z/Arch Supervisor call old PSW
00000000		00000000	000001A0	54 ORG ZVE6TST+X' 1A0'
000001A0	00000001 80000000			55 DC X' 0000000180000000' z/Architecture RESTART PSW

[illegible]

[illegible]

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				254 *****
				255 * Normal completion or Abnormal termination PSWs
				256 *****
000003E0	00020001 80000000			258 E0JPSW DC 0D' 0' , X' 0002000180000000' , AD(0)
000003F0	B2B2 81E0		000003E0	260 E0J LPSWE E0JPSW Normal completion
000003F8	00020001 80000000			262 FAILPSW DC 0D' 0' , X' 0002000180000000' , AD(X' BAD')
00000408	B2B2 81F8		000003F8	264 FAILTEST LPSWE FAILPSW Abnormal termination
				266 *****
				267 * Working Storage
				268 *****
0000040C	00000000			270 CTLR0 DS F CRO
00000410	00000000			271 DS F
				272
00000414	0000138C			273 E6TADR DC A(E6TESTS) address of E6 test table
00000418				275 LTORG , Literals pool
00000418	00000003			276 =XL4' 3'
0000041C	00000001			277 =F' 1'
00000420	0000			278 =H' 0'
00000422	005F			279 =AL2(L' MSGMSG)
				280
				281 * some constants
				282
	00000400	00000001		283 K EQU 1024 One KB
	00001000	00000001		284 PAGE EQU (4*K) Size of one page
	00010000	00000001		285 K64 EQU (64*K) 64 KB
	00100000	00000001		286 MB EQU (K*K) 1 MB
				287
				288
	AABBCCDD	00000001		289 REG2PATT EQU X' AABBCCDD' Polluted Register pattern
	000000DD	00000001		290 REG2LOW EQU X' DD' (last byte above)

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	
				374 *****	
				375 * Macros to help build test tables	
				376 *-----	
				377 * VRR_G Macro to help build test tables	
				378 *****	
				379 MACRO	
				380 VRR_G &INST, &CC	
				381 . *	&INST - instruction under test
				382 . *	&CC - expected CC
				383 . *	
				384 LCLA &XCC(4) &CC has mask values for FAILED condition codes	
				385 &XCC(1) SETA 7	CC != 0
				386 &XCC(2) SETA 11	CC != 1
				387 &XCC(3) SETA 13	CC != 2
				388 &XCC(4) SETA 14	CC != 3
				389	
				390 GBLA &TNUM	
				391 &TNUM SETA &TNUM-1	
				392	
				393 DS OFD	
				394 USING *, R5	base for test data and test routine
				395	
				396 T&TNUM DC A(X&TNUM)	address of test routine
				397 DC H' &TNUM	test number
				398 DC XL1' 00'	
				399 DC HL1' &CC'	cc
				400 DC HL1' &XCC(&CC+1) '	cc failed mask
				401	
				402 DC CL8' &INST'	instruction name
				403	
				404 DC A(16)	result length
				405 REA&TNUM DC A(RE&TNUM)	result address
				406 . *	
				407 *	INSTRUCTION UNDER TEST ROUTINE
				408 X&TNUM DS OF	
				409 VL V1, RE&TNUM	get V1 source
				410	
				411 &INST V1	test instruction
				412	
				413 EPSW R2, R0	exptract psw
				414 ST R2, CCPSW	to save CC
				415	
				416 BR R11	return
				417	
				418 RE&TNUM DC OF	
				419 DROP R5	
				420	
				421 MEND	

423	*****			
424	*	PTTABLE Macro to generate table of pointers to individual tests		
425	*****			
426				
427		MACRO		
428		PTTABLE		
429		GBLA	&TNUM	
430		LCLA	&CUR	
431	&CUR	SETA	1	
432	. *			
433	TTABLE	DS	OF	
434	. LOOP	ANOP		
435	. *			
436		DC	A(T&CUR)	address of test
437	. *			
438	&CUR	SETA	&CUR+1	
439		AIF	(&CUR LE &TNUM) . LOOP	
440	*			
441		DC	A(0)	END OF TABLE
442		DC	A(0)	
443	. *			
444		MEND		

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	
				446 *****	
				447 * E6 VRR_G tests	
				448 *****	
00001148		00000000	000013BB	449 ZVE6TST CSECT ,	
				450 DS OF	
				452 PRINT DATA	
				453 *	
				454 * E65F VTP - VECTOR TEST DECIMAL	
				455 * VRR_G instr, cc	
				456 * followed by	
				457 * v1 - 16 byte source	
				458	
				459 * -----	
				460 * VTP - VECTOR TEST DECIMAL	
				461 * -----	
				462 * VTP simple	
				463	
				464 * digits valid, sign valid	
00001148				465 VRR_G VTP, 0	
00001148		00001148		466+ DS OFD	
00001148	00001164			467+ USING *, R5	base for test data and test routine
0000114C	0001			468+T1 DC A(X1)	address of test routine
0000114E	00			469+ DC H' 1'	test number
0000114F	00			470+ DC XL1' 00'	
00001150	07			471+ DC HL1' 0'	cc
00001151	E5E3D740 40404040			472+ DC HL1' 7'	cc failed mask
0000115C	00000010			473+ DC CL8' VTP'	instruction name
00001160	0000117C			474+ DC A(16)	result length
				475+REA1 DC A(RE1)	result address
				476+*	INSTRUCTION UNDER TEST ROUTINE
00001164				477+X1 DS OF	
00001164	E710 5034 0006		0000117C	478+ VL V1, RE1	get V1 source
0000116A	E601 0000 005F			479+ VTP V1	test instruction
00001170	B98D 0020			480+ EPSW R2, R0	exptract psw
00001174	5020 8E98		00001098	481+ ST R2, CCPSW	to save CC
00001178	07FB			482+ BR R11	return
0000117C				483+RE1 DC OF	
0000117C				484+ DROP R5	
0000117C	00000000 00000000			485 DC XL16' 000000000000000000000000000000C'	V1 source
00001184	00000000 0000000C				
				486	
				487 VRR_G VTP, 0	
00001190				488+ DS OFD	
00001190		00001190		489+ USING *, R5	base for test data and test routine
00001190	000011AC			490+T2 DC A(X2)	address of test routine
00001194	0002			491+ DC H' 2'	test number
00001196	00			492+ DC XL1' 00'	
00001197	00			493+ DC HL1' 0'	cc
00001198	07			494+ DC HL1' 7'	cc failed mask
00001199	E5E3D740 40404040			495+ DC CL8' VTP'	instruction name
000011A4	00000010			496+ DC A(16)	result length
000011A8	000011C4			497+REA2 DC A(RE2)	result address
				498+*	INSTRUCTION UNDER TEST ROUTINE
000011AC				499+X2 DS OF	

LOC	OBJECT CODE	ADDR1	ADDR2	STMT			
000011AC	E710 5034 0006		000011C4	500+	VL	V1, RE2	get V1 source
000011B2	E601 0000 005F			501+	VTP	V1	test instruction
000011B8	B98D 0020			502+	EPSW	R2, R0	exptract psw
000011BC	5020 8E98		00001098	503+	ST	R2, CCPSW	to save CC
000011C0	07FB			504+	BR	R11	return
000011C4				505+RE2	DC	0F	
000011C4				506+	DROP	R5	
000011C4	00000000 00000000			507	DC	XL16' 000000000000000000001234500000000D'	V1 source
000011CC	00123450 0000000D						
				508			
				509 * digits valid, sign invalid			
				510	VRR_G	VTP, 1	
000011D8				511+	DS	0FD	
000011D8		000011D8		512+	USING	*, R5	base for test data and test routine
000011D8	000011F4			513+T3	DC	A(X3)	address of test routine
000011DC	0003			514+	DC	H' 3'	test number
000011DE	00			515+	DC	XL1' 00'	
000011DF	01			516+	DC	HL1' 1'	cc
000011E0	0B			517+	DC	HL1' 11'	cc failed mask
000011E1	E5E3D740 40404040			518+	DC	CL8' VTP'	instruction name
000011EC	00000010			519+	DC	A(16)	result length
000011F0	0000120C			520+REA3	DC	A(RE3)	result address
				521+*			INSTRUCTION UNDER TEST ROUTINE
000011F4				522+X3	DS	0F	
000011F4	E710 900C 0006		0000120C	523+	VL	V1, RE3	get V1 source
000011FA	E601 0000 005F			524+	VTP	V1	test instruction
00001200	B98D 0020			525+	EPSW	R2, R0	exptract psw
00001204	5020 8E98		00001098	526+	ST	R2, CCPSW	to save CC
00001208	07FB			527+	BR	R11	return
0000120C				528+RE3	DC	0F	
0000120C				529+	DROP	R5	
0000120C	00000000 00000000			530	DC	XL16' 0000000000000000000000000000009'	V1 source
00001214	00000000 00000009						
				531			
				532	VRR_G	VTP, 1	
00001220				533+	DS	0FD	
00001220		00001220		534+	USING	*, R5	base for test data and test routine
00001220	0000123C			535+T4	DC	A(X4)	address of test routine
00001224	0004			536+	DC	H' 4'	test number
00001226	00			537+	DC	XL1' 00'	
00001227	01			538+	DC	HL1' 1'	cc
00001228	0B			539+	DC	HL1' 11'	cc failed mask
00001229	E5E3D740 40404040			540+	DC	CL8' VTP'	instruction name
00001234	00000010			541+	DC	A(16)	result length
00001238	00001254			542+REA4	DC	A(RE4)	result address
				543+*			INSTRUCTION UNDER TEST ROUTINE
0000123C				544+X4	DS	0F	
0000123C	E710 5034 0006		00001254	545+	VL	V1, RE4	get V1 source
00001242	E601 0000 005F			546+	VTP	V1	test instruction
00001248	B98D 0020			547+	EPSW	R2, R0	exptract psw
0000124C	5020 8E98		00001098	548+	ST	R2, CCPSW	to save CC
00001250	07FB			549+	BR	R11	return
00001254				550+RE4	DC	0F	
00001254				551+	DROP	R5	
00001254	00000000 00000000			552	DC	XL16' 0000000000000000000012345000000000'	V1 source
0000125C	00123450 00000000						

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	
				553	
				554 * a digit invalid, sign valid	
00001268				555	VRR_G VTP, 2
00001268		00001268		556+	DS OFD
00001268	00001284			557+	USING *, R5
0000126C	0005			558+T5	DC A(X5)
0000126E	00			559+	DC H' 5'
0000126F	02			560+	DC XL1' 00'
00001270	0D			561+	DC HL1' 2'
00001271	E5E3D740 40404040			562+	DC HL1' 13'
0000127C	00000010			563+	DC CL8' VTP'
00001280	0000129C			564+	DC A(16)
				565+REA5	DC A(RE5)
				566+*	INSTRUCTION UNDER TEST ROUTINE
00001284				567+X5	DS OF
00001284	E710 5034 0006		0000129C	568+	VL V1, RE5
0000128A	E601 0000 005F			569+	VTP V1
00001290	B98D 0020			570+	EPSW R2, R0
00001294	5020 8E98		00001098	571+	ST R2, CCPSW
00001298	07FB			572+	BR R11
0000129C				573+RE5	DC OF
0000129C				574+	DROP R5
0000129C	00000000 0FF00000			575	DC XL16' 000000000FF00000000000000000000C'
000012A4	00000000 0000000C				V1 source
				576	
				577	VRR_G VTP, 2
000012B0				578+	DS OFD
000012B0		000012B0		579+	USING *, R5
000012B0	000012CC			580+T6	DC A(X6)
000012B4	0006			581+	DC H' 6'
000012B6	00			582+	DC XL1' 00'
000012B7	02			583+	DC HL1' 2'
000012B8	0D			584+	DC HL1' 13'
000012B9	E5E3D740 40404040			585+	DC CL8' VTP'
000012C4	00000010			586+	DC A(16)
000012C8	000012E4			587+REA6	DC A(RE6)
				588+*	INSTRUCTION UNDER TEST ROUTINE
000012CC				589+X6	DS OF
000012CC	E710 5034 0006		000012E4	590+	VL V1, RE6
000012D2	E601 0000 005F			591+	VTP V1
000012D8	B98D 0020			592+	EPSW R2, R0
000012DC	5020 8E98		00001098	593+	ST R2, CCPSW
000012E0	07FB			594+	BR R11
000012E4				595+RE6	DC OF
000012E4				596+	DROP R5
000012E4	F0F00000 00000000			597	DC XL16' F0F0000000000000001234500000000F'
000012EC	00123450 0000000F				V1 source
				598	
				599 * a digit invalid, sign invalid	
				600	VRR_G VTP, 3
000012F8				601+	DS OFD
000012F8		000012F8		602+	USING *, R5
000012F8	00001314			603+T7	DC A(X7)
000012FC	0007			604+	DC H' 7'
000012FE	00			605+	DC XL1' 00'
000012FF	03			606+	DC HL1' 3'
					cc

LOC	OBJECT CODE	ADDR1	ADDR2	STMT			
00001300	0E			607+	DC	HL1' 14'	cc failed mask
00001301	E5E3D740 40404040			608+	DC	CL8' VTP'	instruction name
0000130C	00000010			609+	DC	A(16)	result length
00001310	0000132C			610+REA7	DC	A(RE7)	result address
				611+*			INSTRUCTION UNDER TEST ROUTINE
00001314				612+X7	DS	0F	
00001314	E710 5034 0006		0000132C	613+	VL	V1, RE7	get V1 source
0000131A	E601 0000 005F			614+	VTP	V1	test instruction
00001320	B98D 0020			615+	EPSW	R2, R0	exptract psw
00001324	5020 8E98		00001098	616+	ST	R2, CCPSW	to save CC
00001328	07FB			617+	BR	R11	return
0000132C				618+RE7	DC	0F	
0000132C				619+	DROP	R5	
0000132C	00000000 0FF00000			620	DC	XL16' 000000000FF0000000000000000000009'	V1 source
00001334	00000000 00000009						
				621			
				622	VRR_G	VTP, 3	
00001340				623+	DS	0FD	
00001340		00001340		624+	USING	*, R5	base for test data and test routine
00001340	0000135C			625+T8	DC	A(X8)	address of test routine
00001344	0008			626+	DC	H' 8'	test number
00001346	00			627+	DC	XL1' 00'	
00001347	03			628+	DC	HL1' 3'	cc
00001348	0E			629+	DC	HL1' 14'	cc failed mask
00001349	E5E3D740 40404040			630+	DC	CL8' VTP'	instruction name
00001354	00000010			631+	DC	A(16)	result length
00001358	00001374			632+REA8	DC	A(RE8)	result address
				633+*			INSTRUCTION UNDER TEST ROUTINE
0000135C				634+X8	DS	0F	
0000135C	E710 5034 0006		00001374	635+	VL	V1, RE8	get V1 source
00001362	E601 0000 005F			636+	VTP	V1	test instruction
00001368	B98D 0020			637+	EPSW	R2, R0	exptract psw
0000136C	5020 8E98		00001098	638+	ST	R2, CCPSW	to save CC
00001370	07FB			639+	BR	R11	return
00001374				640+RE8	DC	0F	
00001374				641+	DROP	R5	
00001374	F0F00000 00000000			642	DC	XL16' F0F000000000000000012345000000002'	V1 source
0000137C	00123450 00000002						
				643			
00001384	00000000			644	DC	F' 0'	END OF TABLE
00001388	00000000			645	DC	F' 0'	
				646 *			
				647 *	table of pointers to individual load test		
				648 *			
0000138C				649 E6TESTS	DS	0F	
				650	PTTABLE		
0000138C				651+TTABLE	DS	0F	
0000138C	00001148			652+	DC	A(T1)	address of test
00001390	00001190			653+	DC	A(T2)	address of test
00001394	000011D8			654+	DC	A(T3)	address of test
00001398	00001220			655+	DC	A(T4)	address of test
0000139C	00001268			656+	DC	A(T5)	address of test
000013A0	000012B0			657+	DC	A(T6)	address of test
000013A4	000012F8			658+	DC	A(T7)	address of test
000013A8	00001340			659+	DC	A(T8)	address of test
				660+*			

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				667 *****
				668 * Register equates
				669 *****
		00000000	00000001	671 R0 EQU 0
		00000001	00000001	672 R1 EQU 1
		00000002	00000001	673 R2 EQU 2
		00000003	00000001	674 R3 EQU 3
		00000004	00000001	675 R4 EQU 4
		00000005	00000001	676 R5 EQU 5
		00000006	00000001	677 R6 EQU 6
		00000007	00000001	678 R7 EQU 7
		00000008	00000001	679 R8 EQU 8
		00000009	00000001	680 R9 EQU 9
		0000000A	00000001	681 R10 EQU 10
		0000000B	00000001	682 R11 EQU 11
		0000000C	00000001	683 R12 EQU 12
		0000000D	00000001	684 R13 EQU 13
		0000000E	00000001	685 R14 EQU 14
		0000000F	00000001	686 R15 EQU 15
				688 *****
				689 * Register equates
				690 *****
		00000000	00000001	692 V0 EQU 0
		00000001	00000001	693 V1 EQU 1
		00000002	00000001	694 V2 EQU 2
		00000003	00000001	695 V3 EQU 3
		00000004	00000001	696 V4 EQU 4
		00000005	00000001	697 V5 EQU 5
		00000006	00000001	698 V6 EQU 6
		00000007	00000001	699 V7 EQU 7
		00000008	00000001	700 V8 EQU 8
		00000009	00000001	701 V9 EQU 9
		0000000A	00000001	702 V10 EQU 10
		0000000B	00000001	703 V11 EQU 11
		0000000C	00000001	704 V12 EQU 12
		0000000D	00000001	705 V13 EQU 13
		0000000E	00000001	706 V14 EQU 14
		0000000F	00000001	707 V15 EQU 15
		00000010	00000001	708 V16 EQU 16
		00000011	00000001	709 V17 EQU 17
		00000012	00000001	710 V18 EQU 18
		00000013	00000001	711 V19 EQU 19
		00000014	00000001	712 V20 EQU 20
		00000015	00000001	713 V21 EQU 21

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES																		
BEGIN	I	00000200	2	90	56	87	88																
CC	U	00000007	1	360	156																		
CCFOUND	X	000010A0	1	333	143	163																	
CCMASK	U	00000008	1	361	123																		
CCMSG	U	00000258	1	136	130																		
CCPRTEXP	C	00001047	1	313	160																		
CCPRTGOT	C	00001057	1	316	167																		
CCPRTLNE	C	00001004	16	308	318	170																	
CCPRTLNG	U	00000055	1	318	169																		
CCPRTNAME	C	00001031	8	311	153																		
CCPRTNUM	C	00001014	3	309	151																		
CCPSW	F	00001098	4	332	140	481	503	526	548	571	593	616	638										
CTLRO	F	0000040C	4	270	100	101	102	103															
DECNUM	C	00001085	16	328	148	150	157	159	164	166													
E6TADR	A	00000414	4	273	109																		
E6TEST	4	00000000	28	356	118																		
E6TESTS	F	0000138C	4	649	273																		
EDIT	X	00001059	18	323	149	158	165																
ENDTEST	U	000002E4	1	188	114																		
EOJ	I	000003F0	4	260	191																		
EOJPSW	D	000003E0	8	258	260																		
FAILCONT	U	000002D4	1	178	173																		
FAILED	F	00001000	4	300	180	189																	
FAILPSW	D	000003F8	8	262	264																		
FAILTEST	I	00000408	4	264	192																		
IMAGE	1	00000000	5052	0																			
K	U	00000400	1	283	284	285	286																
K64	U	00010000	1	285																			
MB	U	00100000	1	286																			
MSG	I	00000328	4	224	207																		
MSGCMD	C	00000372	9	250	237	238																	
MSGMSG	C	0000037B	95	251	231	248	229																
MSGMVC	I	0000036C	6	248	235																		
MSGOK	I	0000033E	2	233	230																		
MSGRET	I	00000358	4	244	241																		
MSGSAVE	F	00000360	4	247	227	244																	
NEXTE6	U	0000022A	1	111	128	183																	
OPNAME	C	00000009	8	363	153																		
PAGE	U	00001000	1	284																			
PRT3	C	0000106F	18	326	149	150	151	158	159	160	165	166	167										
R0	U	00000000	1	671	50	100	103	116	169	179	180	206	208	224	227	229	231	233	244				
					480	502	525	547	570	592	615	637											
R1	U	00000001	1	672	123	124	125	140	141	142	143	170	189	190	238	248							
R10	U	0000000A	1	681	97	98																	
R11	U	0000000B	1	682	120	121	482	504	527	549	572	594	617	639									
R12	U	0000000C	1	683	109	112	127	182															
R13	U	0000000D	1	684																			
R14	U	0000000E	1	685																			
R15	U	0000000F	1	686	171	201	211	212															
R1FUDGE	X	000010A8	8	339																			
R1OUTPUT	F	000010E0	8	343																			
R2	U	00000002	1	673	147	148	155	156	157	162	163	164	206	207	208	225	227	233	234				
					235	237	244	245	480	481	502	503	525	526	547	548	570	571	592				
					593	615	616	637	638														
R3	U	00000003	1	674																			
R4	U	00000004	1	675																			

DESC	SYMBOL	SIZE	POS	ADDR
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Entry: 0

Image	IMAGE	5052	0000- 13BB	0000- 13BB
Regi on		5052	0000- 13BB	0000- 13BB
CSECT	ZVE6TST	5052	0000- 13BB	0000- 13BB

STMT	FILE NAME
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1	/devstor/dev/tests/zvector-e6-14-testdecimal.asm
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** NO ERRORS FOUND **