Assembly para mainframe.

Registradores

Os registradores são pequenas e rápidas áreas de memória utilizada para diversos fins. Alguns desses registradores são utilizados para designar os locais da memória em que o processador vai executar ou pegar informações.

Registradores de segmento

Segmento é uma área da memória usada para armazenar instruções, dados ou usado pela pilha[4]. Os seguintes registradores são usados para designar estas áreas:

- CS - Code Segment, segmento de código em execução.
- DS - Data Segment, segmento de dados.
- SS - Stack Segment, segmento de pilha.
- ES - Extra Segment, segmento extra para armazenamento de dados.
-

Registradores ponteiros

Esses registradores são utilizados para indicar posições da memória de instruções e dados.

- BP - Base Pointer, usado como ponteiro para indicar a base da *stack frame* atual. É usado por linguagens de programação de alto nível, como C, para controlar a área de memória na pilha usada por cada função.
- IP - Instruction Pointer, aponta para a próxima instrução que será executada.
- SP - Stack Pointer, aponta para o final da pilha.
- SI - Source Index, usado em operações com blocos de dados para apontar para o bloco de memória fonte.
- DI - Destination Index, usado em operações com blocos de dados para apontar para o bloco de memória de destino.

Registradores de dados

Usado de forma geral no programa, para várias operações. Embora possam ser utilizados em outras ocasiões, cada um desses registradores foram feitos para tarefas específicas.

- AX - Registrador Acumulador, usado para operações aritméticas.
- BX - Registrador de Base, usado para indexar endereços na memória.
- CX - Registrador Contador, usado para contagem usando a instrução de loop.
- DX - Registrador de Dados, usado para armazenar dados de forma geral. Seja para cálculos ou operações de [I/O].

Esses registradores na verdade são uma junção de dois registradores de 8bits, somando ao todo 16bits. Eles são `AH, AL, BH, BL, CH, CL, DH, DL`.

Também existem versões de 32 e 64bits desses registradores. Onde eles são:

- 32 bits - **EAX, EBX, ECX, EDX**
- 64 bits - **RAX, RBX, RCX, RDX**

EAX usado como um acumulador (recebe resultados de operações)

EBX seria usado como dado base para operações

ECX é um contador (vai incrementando algo)

EDX age como dado geral a ser usado na operação.

ESP (Stack Pointer - indicador de onde está o final da pilha na memória)

EBP (Base Pointer - indicador de onde está o escopo agora, os acessos ao dado na pilha são sempre relativos a esse endereço, em geral ele indica o começo dos dados da função em execução, por isso há uma aritmética em cada acesso a um dado)

ESI (Source, alguma vezes chamado de *index*)

EDI (Destination, esses últimos são usados por instruções otimizadas de acesso a dados múltiplos como *arrays*, incluindo *strings*)

Sufixos:

- `b` = byte (8 bit).
- `s` = single (32-bit floating point).
- `w` = word (16 bit).
- `l` = long (32 bit integer or 64-bit floating point).
- `q` = quad (64 bit).
- `t` = ten bytes (80-bit floating point).

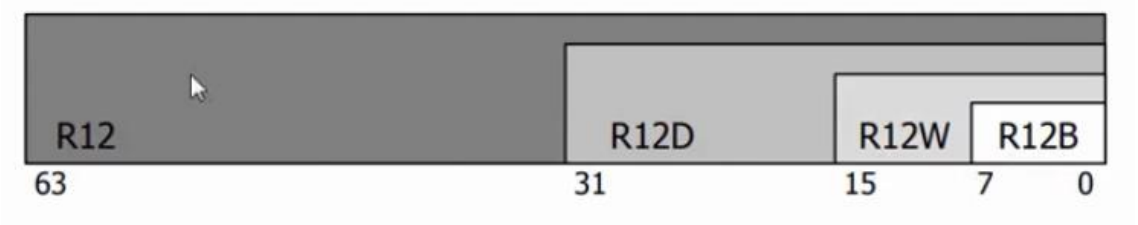
Nome	Nome estendido	Tamanho do operando (em bytes)
byte		1
word		2
dword	double word	4
qword	quad word	8
tword	ten word	10
oword		16
yword		32
zword		64

```
SEG1      EQU      $1000
CONTADOR  DC.L     100
ARR1      DC.W     0,1,1,2,3,5,8,13
MENSAGEM  DC.B     'Alo, pessoal!'
```

```
mov byte ptr [rax],0
mov word ptr [rax],0
mov dword ptr [rax],0
mov qword ptr [rax],0
MOV AH,[200]     ; Movimenta o byte contido em 200h para o registro AH
SUB AH,2         ; Subtrai de 2 o valor do registro AH
MOV [201],AH     ; Armazena conteúdo de AH na memória DS:201h
MOV AX,[200]     ; Movimenta o word contido em 200h para o registro AH
INC AX           ; Incrementa de 1 o valor do registro AH
MOV [205],AX     ; Armazena conteúdo de AH na memória DS:205h
```

Exemplo	**Formato**
0b0111	Binário
0o10	Octal
9	Decimal
0x0a	Hexadecimal
11.0	Ponto flutuante

Registradores de uso geral:



Registradores de 8 bits:

AL BL CL DL armazena de 0 a 255.

Registradores de 16 bits:

AX BX CX DX armazena de 0 a 65535.

Registradores de 32 bits:

EAX EBX ECX EDX armazena de 0 a 4294967295.

Registradores de 64 bits:

RAX RBX RCX RDX armazena de 0 a ...

- R0 – Program Counter (PC)
  - Endereço da próxima instrução
- R1 – Stack Pointer (SP)
  - Endereço da Pilha
- R2 – Status Register (SR)
  - Guarda as flags da última operação
  - Carry, oVerflow, Negative, Zero
- R3 – Constant Generator (CG)

Registradores de Uso Geral: R0 até R12
R13 -> SP (Stack Point) - Ponteiro de Pilha
R14 -> LR (Link Register) - Registrador de Ligação
R15 -> PC (Program Counter)

Algumas instruções assembly

- **ADD**
- Soma o conteúdo de um registrador com um determinado valor ou com o conteúdo de outro registrador.
- O resultado é guardado no primeiro operando.
- Faz um papel semelhante a ADD no Simbler.
- Exemplos:

```
ADD   BL,15       ; Faz BL = BL + 15
```

Algumas instruções assembly

- **SUB** – Subtrai o conteúdo de um registrador.
- **MUL** – Multiplica o conteúdo de um registrador.
- **DIV** – Divide o conteúdo de um registrador.

- **AND** – Realiza um AND bit-a-bit com o conteúdo de um registrador.
- **OR** – Realiza um OR bit-a-bit com o conteúdo de um registrador.
- **XOR** – Realiza um XOR bit-a-bit com o conteúdo de um registrador.

- Essas operações são realizadas de forma semelhante ao ADD.

- Copia um dado da memória do simulador para um registrador ou vice-versa.
- Faz um papel semelhante a STORE e LOAD.
- Exemplos:

```
• MOV  BL,15       ; copia 15 no registrador BL.
• MOV  CL,[12]     ; copia no reg. CL o conteudo do endereco 12h da memória
• MOV  [12],BL     ; copia no endereço 12h da memória o conteúdo do reg. BL
• MOV  AL,[DL]     ; copia no reg. AL o conteúdo do end. de memória indicado por DL
• MOV  [AL],DL     ; copia no end. de memória indicado por AL o conteúdo do reg. DL
```

- mov eax,Y - Está movendo para o registrador chamado EAX o valor que está na memória em certo endereço que é conceitualmente indicado por Y
- add eax,4 - Está fazendo uma operação de adição entre o valor que está em EAX e a constante 4, obviamente que o resultado alterará alguns registradores de bits e manterá o resultado em EAX mesmo, portanto é uma operação com efeito colateral ao que está sendo usado no cálculo
- mov ebx,3 - Está armazenando o número 3 no registrador EBX, é como se fizesse um ebx = 3;
- imul ebx - Está realizando uma multiplicação de inteiros, que é mais simples que um de ponto flutuante usando o EBX com multiplicador, o multiplicando é implicitamente o EAX, e o resultado será armazenado em EAX, como de costume
- mov X,eax - Está movendo para o que se chama conceitualmente X (na prática é um endereço de memória) o que está armazenado em EAX nesse momento.

```
MVC  TARGET,SOURCE              ; Move SOURCE para o TARGET
MVC  TARGET(40),SOURCE          ; Move 40 bytes do source para o TARGET
MVC  TARGET+10(20),SOURCE+3     ; Move 20 primeiros Bytes do SOURCE+3
                                ; para o TARGET+10
MVC  5(3,14),SOURCE             ; Move 3 Bytes do SOURCE para o  inicio do registrador 14 mais 5
```

Address	Value
0x100	$0xFF
0x104	$0xAB
0x108	$0x13
0x10C	$0x11

Register	Value
%eax	$0x100
%ebx	$0x104
%ecx	$0x001
%edx	$0x003

A pseudo-instrução de **substituição simbólica**, `EQU`, associa um valor definido pelo programador a um símbolo. Por exemplo, a linha de instrução

```
SIZE    EQU    100
```

associa o valor decimal 100 ao símbolo SIZE, que pode ser posteriormente referenciado em outras instruções, como em

```
        MOVE    #SIZE,D0
```

Type of Constant	Function	Example
Address	Defines address mainly for the use of fixed-point and other instructions	`L 5,ADCON` `ADCON DC A(SOMWHERE)`
Binary	Defines bit patterns	`FLAG DC B'00010000'`
Character	Defines character strings or messages	`CHAR DC C'string of characters'`

Decimal	Used by decimal instructions	`ZAP AREA,PCON`
		`PCON DC P'100'`
		`AREA DS PL3`

Fixed-point	Used by the fixed-point and other instructions	`L 3,FCON` `FCON DC F'100'`
Floating-point	Used by floating-point instructions	`LE 2,ECON` `ECON DC E'100.50'`
Graphic	Defines character strings or messages that contain pure double-byte data	`DBCS DC G'<.D.B.C.S. .S.T.R.I.N.G>'`
Hexadecimal	Defines large bit patterns	`PATTERN DC X'FF00FF00'`
Zoned	Defines numeric characters	

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
0101	PR	Program Return	E	Control Flow Instructions	390
0102	UPT	Update Tree	E	Data Transfer Instructions	390
0104	PTFF	Perform Timing Facility Function	E	Control Flow Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
0105	CMSG	Clear Message	E	Data Transfer Instructions	390
0106	TMSG	Test Message	E	Data Transfer Instructions	390
0107	SCKPF	Set (TOD) Clock Programmable Field	E	Control Flow Instructions	390
0108	TMPS	Test Message Path State	E	Data Transfer Instructions	390
0109	CMPS	Clear Message Path State	E	Data Transfer Instructions	390
010A	PFPO	Perform Floating Point Operation	E	Data Transfer Instructions	390
010B	TAM	Test Addressing Mode	E	Control Flow Instructions	390
010C	SAM24	Set Addressing Mode (to 24 bits)	E	Control Flow Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
010D	SAM31	Set Addressing Mode (to 31 bits)	E	Control Flow Instructions	390
010E	SAM64	Set Addressing Mode (to 64 bits)	E	Control Flow Instructions	Z
01FF	TRAP2	Trap	E	Control Flow Instructions	390
04	SPM	Set Program Mask	RR	Other Instructions	360
05	BALR	Branch And Link Register	RR	Branch Instructions	360
06	BCTR	Branch on CounT Register	RR	Branch Instructions	360
07	BCR	Branch on Condition Register	RR	Branch Instructions	360
070	NOPR	No Operation Register	RR	Branch Instructions	360
07F	BR	Branch Register (Unconditional)	RR	Branch Instructions	360
08	SSK	Set Storage Key	RR	360 Only Privileg	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
				ed Instructions	
09	ISK	Insert Storage Key	RR	360 Only Privileged Instructions	360
0A	SVC	SuperVisor Call	I	Control Flow Instructions	360
0B	BSM	Branch and Set Mode	RR	Branch Instructions	390
0C	BASSM	Branch and Save and Set Mode	RR	Branch Instructions	390
0D	BASR	Branch And Save Register	RR	Branch Instructions	360
0E	MVCL	MoVe Character Long	RR	Data Transfer Instructions	370
0F	CLCL	Compare Logical Character Long	RR	Logic Instructions	370
10	LPR	Load Positive Register	RR	Data Transfer Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
11	LNR	Load Negative Register	RR	Data Transfer Instructions	360
12	LTR	Load and Test Register	RR	Data Transfer Instructions	360
13	LCR	Load and Complement Register	RR	Arithmetic Instructions	360
14	NR	aNd Register	RR	Arithmetic Instructions	360
15	CLR	Compare Logical Register	RR	Logic Instructions	360
16	OR	Or Register	RR	Arithmetic Instructions	360
17	XR	eXclusive-or Register	RR	Arithmetic Instructions	360
18	LR	Load Register	RR	Data Transfer Instructions	360
19	CR	Compare Register	RR	Logic Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
1A	AR	Add Register	RR	Arithmetic Instructions	360
1B	SR	Subtract Register	RR	Arithmetic Instructions	360
1C	MR	Multiply Register	RR	Arithmetic Instructions	360
1D	DR	Divide Register	RR	Arithmetic Instructions	360
1E	ALR	Add Logical Register	RR	Arithmetic Instructions	360
1F	SLR	Subtract Logical Register	RR	Arithmetic Instructions	360
20	LPDR	Load Positive (Long)	RR	Data Transfer Instructions	360
21	LNDR	Load Negative	RR	Data Transfer Instructions	360
22	LTDR	Load and Test	RR	Data Transfer Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
23	LCDR	Load Complement (Long)	RR	Data Transfer Instructions	360
24	HDR	Halve	RR	Arithmetic Instructions	360
25	LDXR	Load Rounded	RR	Data Transfer Instructions	390
25	LRDR	Load Rounded	RR	360 Only Data Transfer Instructions	360
26	MXR	Multiply	RR	Arithmetic Instructions	360
27	MXDR	Multiply	RR	Arithmetic Instructions	360
28	LDR	Load	RR	Data Transfer Instructions	360
29	CDR	Compare Double Reg.	RR	Logic Instructions	360
2A	ADR	Add Double Register	RR	Arithmetic Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
2B	SDR	Subtract Double Reg.	RR	Arithmetic Instructions	360
2C	MDR	Multiply Double Reg.	RR	Arithmetic Instructions	360
2D	DDR	Divide Double Reg.	RR	Arithmetic Instructions	360
2E	AWR	Add Unnormalized	RR	Arithmetic Instructions	360
2F	SWR	Subtract Unnormalized	RR	Arithmetic Instructions	360
30	LPER	Load Positive (Short)	RR	Data Transfer Instructions	360
31	LNER	Load Negative	RR	Data Transfer Instructions	360
32	LTER	Load and Test	RR	Data Transfer Instructions	360
33	LCER	Load Complement (Short)	RR	Data Transfer Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
34	HER	Halve	RR	Arithmetic Instructions	360
35	LEDR	Load Rounded	RR	Data Transfer Instructions	370
35	LRER	Load Rounded	RR	360 Only Data Transfer Instructions	360
36	AXR	Add Normalized	RR	Arithmetic Instructions	360
37	SXR	Subtract Normalized	RR	Arithmetic Instructions	360
38	LER	Load	RR	Data Transfer Instructions	360
39	CER	Compare	RR	Logic Instructions	360
3A	AER	Add Normalized	RR	Arithmetic Instructions	360
3B	SER	Subtract Normalized	RR	Arithmetic Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
3C	MER	Multiply Normalized	RR	Arithmetic Instructions	360
3D	DER	Divide Normalized	RR	Arithmetic Instructions	360
3E	AUR	Add Unnormalized	RR	Arithmetic Instructions	360
3F	SUR	Subtract Unnormalized	RR	Arithmetic Instructions	360
40	STH	STore Halfword	RX	Data Transfer Instructions	360
41	LA	Load Address	RX	Data Transfer Instructions	360
42	STC	STore Character	RX	Data Transfer Instructions	360
43	IC	Insert Character	RX	Data Transfer Instructions	360
44	EX	EXecute	RX	Data Transfer Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
45	BAL	Branch And Link	RX	Branch Instructions	360
46	BCT	Branch on CounT	RX	Branch Instructions	360
47	BC	Branch on Condition	RX	Branch Instructions	360
470	NOP	No Operation	RX	Branch Instructions	360
471	BO	Branch on Overflow/Ones	RX	Branch Instructions	360
472	BH	Branch (a High)	RX	Branch Instructions	360
472	BP	Branch on Plus	RX	Branch Instructions	360
474	BL	Branch (a Low)	RX	Branch Instructions	360
474	BM	Branch on Minus/Mixed	RX	Branch Instructions	360
477	BNE	Branch Not Equal	RX	Branch Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
477	BNZ	Branch Not Zero	RX	Branch Instructions	360
478	BE	Branch (a Equal b)	RX	Branch Instructions	360
478	BZ	Branch on Zero	RX	Branch Instructions	360
47B	BNL	Branch (a Not Low)	RX	Branch Instructions	360
47B	BNM	Branch Not Minus	RX	Branch Instructions	360
47D	BNH	Branch Not High	RX	Branch Instructions	360
47D	BNP	Branch Not Plus	RX	Branch Instructions	360
47E	BNO	Branch Not Ones	RX	Branch Instructions	360
47F	B	Branch (unconditional)	RX	Branch Instructions	360
48	LH	Load Halfword	RX	Data Transfer Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
49	CH	Compare Halfword	RX	Logic Instructions	360
4A	AH	Add Halfword	RX	Arithmetic Instructions	360
4B	SH	Subtract Halfword	RX	Arithmetic Instructions	360
4C	MH	Multiply Halfword	RX	Arithmetic Instructions	360
4D	BAS	Branch And Save	RX	Branch Instructions	360
4E	CVD	ConVert to Decimal	RX	Data Transfer Instructions	360
4F	CVB	ConVert to Binary	RX	Data Transfer Instructions	360
50	ST	STore	RX	Data Transfer Instructions	360
51	LAE	Load Address Extended	RX	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
54	N	aNd	RX	Arithmetic Instructions	360
55	CL	Compare Logical	RX	Logic Instructions	360
56	O	Or	RX	Arithmetic Instructions	360
57	X	eXclusive or	RX	Arithmetic Instructions	360
58	L	Load	RX	Data Transfer Instructions	360
59	C	Compare	RX	Logic Instructions	360
5A	A	Add	RX	Arithmetic Instructions	360
5B	S	Subtract	RX	Arithmetic Instructions	360
5C	M	Multiply	RX	Arithmetic Instructions	360
5D	D	Divide	RX	Arithmetic Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
5E	AL	Add Logical	RX	Arithmetic Instructions	360
5F	SL	Subtract Logical	RX	Arithmetic Instructions	360
60	STD	Store Double	RX	Data Transfer Instructions	360
67	MXD	Multiply Double	RX	Arithmetic Instructions	360
68	LD	Load Double	RX	Data Transfer Instructions	360
69	CD	Compare Double	RX	Logic Instructions	360
6A	AD	Add Double normalized	RX	Arithmetic Instructions	360
6B	SD	Subtract Double normalized	RX	Arithmetic Instructions	360
6C	MD	Multiply Double	RX	Arithmetic Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
6D	DD	Divide Double	RX	Arithmetic Instructions	360
6E	AW	Add unnormalized Word	RX	Arithmetic Instructions	360
6F	SW	Subtract unnormalized Word	RX	Arithmetic Instructions	360
70	STE	Store short	RX	Data Transfer Instructions	360
71	MS	Multiply Single	RX	Data Transfer Instructions	370
78	LE	Load short	RX	Data Transfer Instructions	360
79	CE	Compare short	RX	Logic Instructions	360
7A	AE	Add normalized short	RX	Arithmetic Instructions	360
7B	SE	Subtract normalized short	RX	Arithmetic Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
7C	MDE	Multiply short	RX	Arithmetic Instructions	390
7C	ME	Multiply short	RX	Arithmetic Instructions	360
7D	DE	Divide short	RX	Arithmetic Instructions	360
7E	AU	Add Unnormalized short	RX	Arithmetic Instructions	360
7F	SU	Subtract Unnormalized short	RX	Arithmetic Instructions	360
80	SSM	Set System Mask	SI	Privileged Instructions	360
82	LPSW	Load Program Status Word	S	Privileged Instructions	360
83	DIAGNOSE	Diagnose[1]	RX	Privileged Instructions	360
84	WRD	Write Direct	RX	360 Only Privileged Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
85	RDD	Read Direct	RX	360 Only Privileged Instructions	360
84	BRXH	Branch Relative on indeX High	RSI	Branch Instructions	370
84	JXH	Jump on indeX High	RSI	Branch Instructions	370
85	BRXLE	Branch Relative on indeX Low or Equal	RSI	Branch Instructions	370
85	JXLE	Jump on indeX Low or Equal	RSI	Branch Instructions	370
86	BXH	Branch on indeX High	RS	Branch Instructions	360
87	BXLE	Branch on indeX Low or Equal	RS	Branch Instructions	360
88	SRL	Shift Right single Logical	RS	Shift and Rotate Instructions	360
89	SLL	Shift Left Logical	RS	Shift and Rotate Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
8A	SRA	Shift Right Arithmetic	RS	Shift and Rotate Instructions	360
8B	SLA	Shift Left Arithmetic	RS	Shift and Rotate Instructions	360
8C	SRDL	Shift Right Double Logical	RS	Shift and Rotate Instructions	360
8D	SLDL	Shift Left Double Logical	RS	Shift and Rotate Instructions	360
8E	SRDA	Shift Right Double Arithmetic	RS	Shift and Rotate Instructions	360
8F	SLDA	Shift Left Double Arithmetic	RS	Shift and Rotate Instructions	360
90	STM	STore Multiple	RS	Data Transfer Instructions	360
91	TM	Test under Mask	SI	Logic Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
92	MVI	MoVe Immediate	SI	Data Transfer Instructions	360
93	TS	Test and Set	SI	Logic Instructions	360
94	NI	aNd Immediate	SI	Data Transfer Instructions	360
95	CLI	Compare Logical Immediate	SI	Logic Instructions	360
96	OI	Or Immediate	SI	Data Transfer Instructions	360
97	XI	eXclusive-or Immediate	SI	Data Transfer Instructions	360
98	LM	Load Multiple	RS	Data Transfer Instructions	360
99	TRACE	Trace	RS	Privileged Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
9A	LAM	Load Access Multiple	RS	Data Transfer Instructions	370
9B	STAM	Store Access Multiple	RS	Data Transfer Instructions	370
9C	SIO	Start I/O	SI	360 Only Privileged Instructions	360
9C00	SIO	Start I/O	SI	Privileged Instructions	370
9C01	SIOF	Start I/O Fast release	SI	Privileged Instructions	370
9C00	RIO	Resume I/O	SI	Privileged Instructions	370
9D	TIO	Test I/O	SI	360 Only Privileged Instructions	360
9D00	TIO	Test I/O	SI	370 Only Privileged Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
9D01	CLRIO	CLeaR I/O	SI	370 Only Privileged Instructions	370
9E	HIO	Halt I/O	SI	360 Only Privileged Instructions	360
9E00	HIO	Halt I/O	SI	370 Only Privileged Instructions	370
9E01	HDV	Halt DeVice	SI	370 Only Privileged Instructions	370
9F	TCH	Test CHannel	SI	360, 370 Only Privileged Instructions	360
9F00	TCH	Test CHannel	SI	390 & Z Privileged Instructions	390
9F01	CLRCH	Clear CHannel	SI	Privileged Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B258	BSG	Branch in Subspace Group	RRE	Branch Instructions	390
A4--		Vector Instructions	RI-a	370 and 390 Only Other Instructions	370
A400	VAE	Add Exponential (Vector)	RI-a	370 and 390 Only Other Instructions	370
A401	VSE	Subtract (Vector)	RI-a	370 and 390 Only Other Instructions	370
A402	VME	Multiply (Vector)	RI-a	370 and 390 Only Other Instructions	370
A403	VDE	Divide (Vector)	RI-a	370 and 390 Only Other Instructions	370
A404	VMAE	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A405	VMSE	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A406	VMCE	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A407	VACE	ACcumulate Exponential (Vector)	RI-a	370 and 390 Only Other Instructions	370
A408	VCE	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A409	VL	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A40A	VLM	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A40B	VLY	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A40D	VST	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A40E	VSTM	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A40F	VSTK	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A410	VAD	Add Double (Vector)	RI-a	370 and 390 Only Other Instructions	370
A411	VSD	Subtract (Vector)	RI-a	370 and 390 Only Other Instructions	370
A412	VMD	Multiply (Vector)	RI-a	370 and 390 Only Other Instructions	370
A413	VDD	Divide (Vector)	RI-a	370 and 390 Only Other Instructions	370
A414	VMAD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A414	VMSD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A416	VMCD	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A417	VACD	ACcumulate Double (Vector)	RI-a	370 and 390 Only Other Instructions	370
A418	VCD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A419	VLD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A41A	VLMD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A41B	VLYD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A41D	VSTD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A41E	VSTMD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A41F	VSTKD	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A420	VA	Add (Vector)	RI-a	370 and 390 Only Other Instructions	370
A421	VS	Subtract (Vector)	RI-a	370 and 390 Only Other Instructions	370
A422	VM	Multiply (Vector)	RI-a	370 and 390 Only Other Instructions	370
A424	VN	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A425	VO	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A426	VX	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A428	VC	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A429	VLH	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A42A	VLINT	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A42D	VSTH	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A443	VSQE	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A444	VTAE	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A445	VTSE	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A453	VSQD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A454	VTAD	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A455	VTSD	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A480	VAES	Add Exponential to Storage (Vector)	RI-a	370 and 390 Only Other Instructions	370
A481	VSES	Subtract (Vector)	RI-a	370 and 390 Only Other Instructions	370
A482	VMES	Multiply (Vector)	RI-a	370 and 390 Only Other Instructions	370
A483	VDES	Divide (Vector)	RI-a	370 and 390 Only Other Instructions	370
A484	VMAES	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A485	VMSES	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A488	VCES	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A490	VADS	Add Double to Storage (Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A491	VSDS	Subtract (Vector)	RI-a	370 and 390 Only Other Instructions	370
A492	VMDS	Multiply (Vector)	RI-a	370 and 390 Only Other Instructions	370
A493	VDDS	Divide (Vector)	RI-a	370 and 390 Only Other Instructions	370
A494	VMADS	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A495	VMSDS	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A498	VCDS	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A4A0	VAS	Add (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A4A1	VSS	Subtract (Vector)	RI-a	370 and 390 Only Arithme	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
				tic Instructions	
A4A2	VMS	Multuiply (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A4A4	VNS	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A4A5	VOS	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A4A6	VXS	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A4A8	VCS	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A5--		Vector Instructions	RI-a	370 and 390 Only Other Instructions	370
A500	VAER	Add Exponential Register (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A501	VSER	Subtract (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A502	VMER	Multiply (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A503	VDER	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A506	VMCER	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A507	VACER	ACcumulate Exponential Reg. (Vector)	RI-a	370 and 390 Only Other Instructions	370
A508	VCER	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A509	VLR	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A50A	VLMR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A50B	VLZR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A510	VADR	Add Double to Register (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A511	VSDR	Subtract (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A512	VMDR	Multiply (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A513	VDDR	Divide (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A516	VMCER	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A517	VACDR	Accumulate Double Register (Vector)	RI-a	370 and 390 Only Other Instructions	370
A518	VCDR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A519	VLDR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A51A	VLMDR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A51B	VLZDR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A520	VAR	Add to Register (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A521	VSR	Subtract (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A522	VMR	Multiply (Vector)	RI-a	370 and 390 Only Arithme	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
				tic Instructions	
A524	VNR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A525	VOR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A526	VXR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A528	VCR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A540	VLPER	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A541	VLNER	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A542	VLCER	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A543	VSQER	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A550	VLPDR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A551	VLNDR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A552	VLCDR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A553	VSQDR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A560	VLPR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A561	VLNR	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A562	VLCR	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A580	VAEQ	Add Exponential (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A581	VSEQ	Subtract (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A582	VMEQ	Multiply (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A583	VDEQ	Divide (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A584	VMAEQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A585	VMSEQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A588	VCEQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A589	VLEQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A58A	VLMEQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A590	VADQ	Add Double to Qualified Reg. (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A591	VSDQ	Subtract (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A592	VMDQ	Multiply (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A593	VDDQ	Divide (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A594	VMADQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A595	VMSDQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A598	VCDQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A599	VLDQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A59A	VLMDQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A5A0	VAQ	Add to Qualified reg. (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A5A1	VSQ	Subtract (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370
A5A2	VMQ	Multiply (Vector)	RI-a	370 and 390 Only Arithmetic Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A5A4	VNQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A5A5	VOQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A5A6	VXQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A5A8	VCQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A5A9	VLQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A5AA	VLMQ	(Vector)	RI-a	370 and 390 Only Other Instructions	370
A50	IIHH	Insert Immediate High High	RI-a	Data Transfer Instructions	Z
A51	IIHL	Insert Immediate High Low	RI-a	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A52	IILH	Insert Immediate Low High	RI-a	Data Transfer Instructions	Z
A53	IILL	Insert Immediate Low Low	RI-a	Data Transfer Instructions	Z
A54	NIHH	And Immediate High High	RI-a	Arithmetic Instructions	Z
A55	NIHL	And Immediate High Low	RI-a	Arithmetic Instructions	Z
A56	NILH	And Immediate Low High	RI-a	Arithmetic Instructions	Z
A57	NILL	And Immediate Low Low	RI-a	Arithmetic Instructions	Z
A58	OIHH	Or Immediate High High	RI-a	Arithmetic Instructions	Z
A59	OIHL	Or Immediate High Low	RI-a	Arithmetic Instructions	Z
A5A	OILH	Or Immediate Low High	RI-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A5B	OILL	Or Immediate Low Low	RI-a	Arithmetic Instructions	Z
A5C	LLIHH	Load Logical Immediate High High	RI-a	Data Transfer Instructions	Z
A5D	LLIHL	Load Logical Immediate High Low	RI-a	Data Transfer Instructions	Z
A5E	LLILH	Load Logical Immediate Low High	RI-a	Data Transfer Instructions	Z
A5F	LLILL	Load Logical Immediate Low Low	RI-a	Data Transfer Instructions	Z
A6--		Vector Instructions	RRE	370 and 390 Only Other Instructions	370
A600	VMXSE	(Vector)	RRE	370 and 390 Only Other Instructions	370
A601	VMNSE	(Vector)	RRE	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A602	VMXAE	(Vector)	RRE	370 and 390 Only Other Instructions	370
A608	VLELE	(Vector)	RRE	370 and 390 Only Other Instructions	370
A609	VXELE	(Vector)	RRE	370 and 390 Only Other Instructions	370
A610	VMXDS	(Vector)	RRE	370 and 390 Only Other Instructions	370
A611	VMNSD	(Vector)	RRE	370 and 390 Only Other Instructions	370
A612	VMXAD	(Vector)	RRE	370 and 390 Only Other Instructions	370
A618	VLELD	(Vector)	RRE	370 and 390 Only Other Instructions	370
A619	VXELD	(Vector)	RRE	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A61A	VSPSD	(Vector)	RRE	370 and 390 Only Other Instructions	370
A61B	VZPSD	(Vector)	RRE	370 and 390 Only Other Instructions	370
A640	VTVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A641	VCVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A642	VCZVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A643	VCOVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A644	VXVC	(Vector)	RRE	370 and 390 Only Other Instructions	370
A645	VLVCU	(Vector)	RRE	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A646	VXVMM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A648	VRRS	(Vector)	RRE	370 and 390 Only Other Instructions	370
A649	VRSVC	(Vector)	RRE	370 and 390 Only Other Instructions	370
A64A	VRSV	(Vector)	RRE	370 and 390 Only Other Instructions	370
A680	VLVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A681	VLCVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A682	VSTVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A684	VNVM	(Vector)	RRE	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A685	VOVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A686	VXVM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6C0	VSRSV	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6C1	VMRSV	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6C2	VSRRS	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6C3	VMRRS	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6V4	VLVCA	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6C5	VRCL	(Vector)	RRE	370 and 390 Only Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A6C6	VSVMM	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6C7	VLVXA	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6C8	VSTVP	(Vector)	RRE	370 and 390 Only Other Instructions	370
A6CA	VACSV	Activity Count SaVe (Vector)	RRE	370 and 390 Only Other Instructions	370
A6CB	VACRS	Activity Count ReStore (Vector)	RRE	370 and 390 Only Other Instructions	370
A70	TMH	Test under Mask High	RI-a	Logic Instructions	390
A70	TMLH	Test under Mask Low High	RI-a	Logic Instructions	390
A71	TML	Test under Mask Low	RI-a	Logic Instructions	390
A71	TMLL	Test under Mask Low Low	RI-a	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A72	TMHH	Test under Mask High High	RI-a	Logic Instructions	390
A73	TMHL	Test under Mask High Low	RI-a	Logic Instructions	390
A74	BRC	Branch Relative on Condition	RI-c	Branch Instructions	390
A74	JC	Jump on Condition	RI-c	Branch Instructions	390
A74-0	BRNOP	Branch Relative No Operation	RI-c	Branch Instructions	390
A74-0	JNOP	Jump No Operation	RI-c	Branch Instructions	390
A74-1	BRO	Branch Relative on Overflow	RI-c	Branch Instructions	390
A74-1	JO	Jump on Overflow	RI-c	Branch Instructions	390
A74-2	BRH	Branch Relative on High	RI-c	Branch Instructions	390
A74-2	JH	Jump on High	RI-c	Branch Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A74-2	BRP	Branch Relative on Plus	RI-c	Branch Instructions	390
A74-2	JP	Jump on Plus	RI-c	Branch Instructions	390
A74-4	BRL	Branch Relative on Low	RI-c	Branch Instructions	390
A74-4	JL	Jump on Low	RI-c	Branch Instructions	390
A74-4	BRM	Branch Relative on Minus	RI-c	Branch Instructions	390
A74-4	JM	Jump on Minus	RI-c	Branch Instructions	390
A74-7	BRNE	Branch Relative on Not Equal	RI-c	Branch Instructions	390
A74-7	JNE	Jump on Not Equal	RI-c	Branch Instructions	390
A74-7	BRNZ	Branch Relative on Not Zero	RI-c	Branch Instructions	390
A74-7	JNZ	Jump on Not Zero	RI-c	Branch Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A74-8	BRE	Branch Relative on Equal	RI-c	Branch Instructions	390
A74-8	JE	Jump on Equal	RI-c	Branch Instructions	390
A74-B	BRNL	Branch Relative on Not Low	RI-c	Branch Instructions	390
A74-B	JNL	Jump on Not Low	RI-c	Branch Instructions	390
A74-B	BRNM	Branch Relative on Not Minus	RI-c	Branch Instructions	390
A74-B	JNM	Jump on Not Minus	RI-c	Branch Instructions	390
A74-D	BRNH	Branch Relative on Not High	RI-c	Branch Instructions	390
A74-D	JNH	Jump on Not High	RI-c	Branch Instructions	390
A74-D	BRNP	Branch Relative on Not Plus	RI-c	Branch Instructions	390
A74-D	JNP	Jump on Not Plus	RI-c	Branch Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A74-E	BRNO	Branch Relative on No Overflow	RI-c	Branch Instructions	390
A74-E	JNO	Jump on No Overflow	RI-c	Branch Instructions	390
A74-F	BRU	Branch Relative Unconditional	RI-c	Branch Instructions	390
A74-F	JU	Jump Unconditional	RI-c	Branch Instructions	390
A75	BRAS	Branch Relative and Save	RI-b	Branch Instructions	390
A76	BRCT	Branch Relative on Count	RI-b	Branch Instructions	390
A76	JCT	Jump on Count	RI-b	Branch Instructions	390
A77	BRCTG	Branch Relative on Count 64	RI-b	Branch Instructions	Z
A77	JCTG	Jump on Count 64	RI-b	Branch Instructions	Z
A78	LHI	Load Halfword Immediate	RI-a	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
A79	LGHI	Load Halfword Immediate 64	RI-a	Data Transfer Instructions	Z
A7A	AHI	Add Halfword Immediate	RI-a	Arithmetic Instructions	390
A7B	AGHI	Add Halfword Immediate 64	RI-a	Arithmetic Instructions	Z
A7C	MHI	Multiply Halfword Immediate	RI-a	Arithmetic Instructions	390
A7D	MGHI	Multiply Halfword Immediate 64	RI-a	Arithmetic Instructions	Z
A7E	CHI	Compare Halfword Immediate	RI-a	Logic Instructions	390
A7F	CGHI	Compare Halfword Immediate 64	RI-a	Logic Instructions	Z
A8	MVCLE	Move Long Extended	RS	Data Transfer Instructions	390
A9	CLCLE	Compare Logical Long Extended	RS	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
AC	STNSM	Store Then aNd System Mask	SI	Privileged Instructions	370
AD	STOSM	Store Then Or System Mask	SI	Privileged Instructions	370
AE	SIGP	Signal Processor	RS	Privileged Instructions	370
AF	MC	Monitor Call	SI	Other Instructions	370
B1	LRA	Load Real Address	RX	Privileged Instructions	370
B200	CONCS	Connect Channel Set	S	Privileged Instructions	370
B201	DISCS	DISconnect Channel Set	S	Privileged Instructions	370
B202	STIDP	Store CPU ID	S	Privileged Instructions	370
B204	SCK	Set Clock	S	Privileged Instructions	370
B205	STCK	Store Clock	S	Data Transfer Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B206	SCKC	Set Clock Comparator	S	Privileged Instructions	370
B207	STCKC	Store Clock Comparator	S	Privileged Instructions	370
B208	SPT	Set CPU Timer	S	Privileged Instructions	370
B209	STPT	Store CPU Timer	S	Privileged Instructions	370
B20A	SPKA	Set PSW Key From Address	S	Privileged Instructions	370
B20B	IPK	Insert PSW Key	S	Privileged Instructions	370
B20D	PTLB	Purge TLB	S	Privileged Instructions	390
B210	SPX	Set Prefix	S	Privileged Instructions	370
B211	STPX	Store Prefix	S	Privileged Instructions	370
B212	STAP	Store CPU Address	S	Privileged Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B213	RRB	Reset Reference Bit	S	Privileged Instructions	370
B214	SIE		RI-a	390 Only Other Instructions	390
B218	PC	Program Call	S	Control Flow Instructions	390
B218	PCF	Program Call Fast	S	Control Flow Instructions	390
B219	SAC	Set Address Space Control	S	Control Flow Instructions	390
B21A	CFC	Compare and Form Codeword	S	Logic Instructions	390
B21B	DEP			Other Instructions	390
B21C	DCTP			Other Instructions	390
B21D	MAD	Multiply and Add Long		Arithmetic Instructions	390
B21E	MUN			Other Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B21F	STCAP			Other Instructions	390
B220	SERVC			Other Instructions	390
B221	IPTE	Invalidate Page Table Entry	RRF	Privileged Instructions	390
B222	IPM	Insert Program Mask	RRE	Other Instructions	390
B223	IVSK	Insert Virtual Storage Key	RRE	Privileged Instructions	390
B224	IAC	Insert Address Space Control	RRE	Privileged Instructions	390
B225	SSAR	Set Secondary ASN	RRE	Privileged Instructions	390
B226	EPAR	Extract Primary ASN	RRE	Privileged Instructions	390
B227	ESAR	Extract Secondary ASN	RRE	Privileged Instructions	390
B228	PT	Program Transfer	RRE	Privileged Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B229	ISKE	Insert Storage Key Extended	RRE	Privileged Instructions	390
B22A	RRBE	Reset Storage Key Extended	RRE	Privileged Instructions	390
B22B	SSKE	Set Storage Key Extended	RRE	Privileged Instructions	390
B22C	TB	Test Block	RRE	Privileged Instructions	390
B22D	DXR	Divide Extended	RRE	Data Transfer Instructions	390
B22E	PGIN	Page In	RRE	Privileged Instructions	390
B22F	PGOUT	Page Out	RRE	Privileged Instructions	390
B230	CSCH	Clear SubCHannel	S	Privileged Instructions	390
B231	HSCH	Halt SubCHannel	S	Privileged Instructions	390
B232	MSCH	Modify SubCHannel	S	Privileged Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B233	SSCH	Start SubCHannel	S	Privileged Instructions	390
B234	STSCH	Store SubCHannel	S	Privileged Instructions	390
B235	TSCH	Test SubCHannel	S	Privileged Instructions	390
B236	TPI	Test Pending Interruption	S	Privileged Instructions	390
B237	SAL	Set Address Limit	S	Privileged Instructions	390
B238	RSCH	Resume SubCHannel	S	Privileged Instructions	390
B239	STCRW	Store Channel Report Word	S	Privileged Instructions	390
B23A	STCPS	Store Channel Path Status	S	Privileged Instructions	390
B23B	RCHP	Reset Channel Path	S	Privileged Instructions	390
B23C	SCHM	Set Channel Monitor	S	Privileged Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B23D	STZP			Other Instructions	390
B23E	SZP			Other Instructions	390
B23F	TPZI			Other Instructions	390
B240	BAKR	Branch and Stack	RRE	Data Transfer Instructions	390
B241	CKSM	Checksum	RRE	Data Transfer Instructions	390
B242		Add FRR	RRE	Other Instructions	390
B243	MADS			Other Instructions	390
B244	SQDR	Square Root Long	RRE	Arithmetic Instructions	390
B245	SQER	Square Root Short	RRE	Arithmetic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B246	STURA	STore Using Real Address	RRE	Privileged Instructions	390
B247	MSTA	Modify Stacked state	RRE	Control Flow Instructions	390
B248	PALB	Purge ALB	RRE	Privileged Instructions	390
B249	EREG	Extract Stacked Registers	RRE	Data Transfer Instructions	390
B24A	ESTA	Extract Stacked State	RRE	Control Flow Instructions	390
B24B	LURA	Load Using Real Address	RRE	Privileged Instructions	390
B24C	TAR	Test Access	RRE	Control Flow Instructions	390
B24D	CPYA	Copy Access	RRE	Other Instructions	390
B24E	SAR	Set Access	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B24F	EAR	Extract Access	RRE	Data Transfer Instructions	390
B250	CSP	Compare and Swap and Purge	RRE	Control Flow Instructions	390
B252	MSR	Multiply Single	RRE	Data Transfer Instructions	390
B254	MVPG	Move Page	RRE	Privileged Instructions	390
B255	MVST	Move String	RRE	Data Transfer Instructions	390
B257	CUSE	Compare Until Substring Equal	RRE	Logic Instructions	390
B258	BSG	Branch in Subspace Group	RRE	Branch Instructions	390
B259	IESBE		RRE	Other Instructions	390
B25A	BSA	Branch and Set Authority	RRE	Branch Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B25B		Asynchronus Page Facility	RRE	Other Instructions	390
B25C		Asynchronus Page Facility	RRE	Other Instructions	390
B25D	CLST	Compare Logical String	RRE	Logic Instructions	390
B25E	SRST	Search String	RRE	Control Flow Instructions	390
B260		Coupling Facility	RRE	Other Instructions	390
B261		Coupling Facility	RRE	Other Instructions	390
B263	CMPSC	Compression Call	RRE	Other Instructions	390
B264		Coupling Facility	RRE	Other Instructions	390
B266		Coupling Facility	RRE	Other Instructions	390
B267		Coupling Facility	RRE	Other Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B269		Cryptographic Facility	RRE	Other Instructions	390
B26A		Cryptographic Facility	RRE	Other Instructions	390
B26B		Cryptographic Facility	RRE	Other Instructions	390
B26C		Cryptographic Facility	RRE	Other Instructions	390
B26D		Cryptographic Facility	RRE	Other Instructions	390
B26E		Cryptographic Facility	RRE	Other Instructions	390
B26F		Cryptographic Facility	RRE	Other Instructions	390
B272		Coupling Facility	RRE	Other Instructions	390
B276	XSCH	Cancel SubCHannel	S	Other Instructions	390
B277	RP	Resume Program	S	Privileged Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B278	STCKE	Store Clock Extended	S	Data Transfer Instructions	390
B279	SACF	Set Address Space Control Fast	S	Control Flow Instructions	390
B27A		Coupling Facility	RRE	Other Instructions	390
B27B		Coupling Facility	RRE	Other Instructions	390
B27C	STCKF	Store Clock Fast	S	Other Instructions	390
B27D	STSI	Store System Information	S	Privileged Instructions	390
B27E		Coupling Facility	RRE	Other Instructions	390
B27F		Coupling Facility	RRE	Other Instructions	390
B299	SRNM	Set Rounding Mode	S	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B29C	STFPC	Store FPC	S	Data Transfer Instructions	390
B29D	LFPC	Load FPC	S	Data Transfer Instructions	390
B2A5	TRE	Translate Extended	RRE	Data Transfer Instructions	390
B2A6	CU21	Convert UTF-16 to UTF-8	RRF-c	Data Transfer Instructions	390
B2A6	CUUTF	Convert Unicode to UTF-8	RRF-c	Data Transfer Instructions	390
B2A7	CU12	Convert UTF-8 to UTF-16	RRF-c	Data Transfer Instructions	390
B2A7	CUTFU	Convert UTF-8 to Unicode	RRF-c	Data Transfer Instructions	390
B2AA		Dequeue CAM	RRE	Other Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B2AB		Process CAM Queue	RRE	Other Instructions	390
B2AC		Enqueue CAM	RRE	Other Instructions	390
B2B1	STFL	Store Facility List	S	Privileged Instructions	390
B2B2	LPSWE	Load PSW Extended	S	Privileged Instructions	390
B2B8	SRNMB	Set Rounding Mode	S	Data Transfer Instructions	390
B2B9	SRNMT	Set Decimal Rounding Mode	S	Other Instructions	390
B2BD	LFAS	Load FPC and Signal	S	Other Instructions	390
B2F6		Coupling Facility	RRE	Other Instructions	390
B2F8	TEND	Transaction END	S	Control Flow Instructions	Z
B2FC	TABORT	Transaction ABORT	S	Control Flow Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B2FF	TRAP4	Trap	S	Control Flow Instructions	390
B300	LPEBR	Load Positive Short	RRE	Data Transfer Instructions	390
B301	LNEBR	Load Negative Short	RRE	Data Transfer Instructions	390
B302	LTEBR	Load and Test Short	RRE	Data Transfer Instructions	390
B303	LCEBR	Load Complement Short	RRE	Data Transfer Instructions	390
B304	LDEBR	Load Lengthened Short/Long	RRE	Data Transfer Instructions	390
B305	LXDBR	Load Lengthened Long/Extended	RRE	Data Transfer Instructions	390
B306	LDEBR	Load Lengthened Short/Extended	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B307	MXDBR	Multiply Long/Extended	RRE	Arithmetic Instructions	390
B308	KEBR	Compare and Signal Short	RRE	Logic Instructions	390
B309	CEBR	Compare Short	RRE	Logic Instructions	390
B30A	AEBR	Add Short	RRE	Arithmetic Instructions	390
B30B	SEBR	Subtract Short	RRE	Arithmetic Instructions	390
B30C	MDEBR	Multiply Short/Long	RRE	Arithmetic Instructions	390
B30D	DEBR	Divide Short	RRE	Arithmetic Instructions	390
B30E	MAEBR	Multiply and Add Short	RRE	Arithmetic Instructions	390
B30F	MSEBR	Multiply and Subtract Short	RRE	Arithmetic Instructions	390
B310	LPDBR	Load Positive Long	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B311	LNDBR	Load Negative Long	RRE	Data Transfer Instructions	390
B312	LTDBR	Load and test Long	RRE	Data Transfer Instructions	390
B313	LCDBR	Load Complement Long	RRE	Data Transfer Instructions	390
B314	SQEBR	Square Root Short	RRE	Arithmetic Instructions	390
B315	SQDBR	Square Root Long	RRE	Arithmetic Instructions	390
B316	SQXBR	Square Root Extended	RRE	Arithmetic Instructions	390
B317	MEEBR	Multiply Short	RRE	Arithmetic Instructions	390
B318	KDBR	Compare and Signal Long	RRE	Logic Instructions	390
B319	CDBR	Compare Long	RRE	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B31A	ADBR	Add Long	RRE	Arithmetic Instructions	390
B31B	SDBR	Subtract Long	RRE	Arithmetic Instructions	390
B31C	MDBR	Multiply Long	RRE	Arithmetic Instructions	390
B31D	DDBR	Divide Long	RRE	Arithmetic Instructions	390
B31E	MADBR	Multiply and Add Long	RRE	Arithmetic Instructions	390
B31F	MSDBR	Multiply and Subtract Long	RRE	Arithmetic Instructions	390
B324	LDER	Load Lengthened Short/Long	RRE	Data Transfer Instructions	390
B325	LXDR	Load Lengthened Long/Extended	RRE	Data Transfer Instructions	390
B326	LXER	Load Lengthened Short/Extended	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B32E	MAER	Multiply and Add Short	RRF	Arithmetic Instructions	390
B32F	MSER	Multiply and Subtract Short	RRF	Arithmetic Instructions	390
B336	SQXR	Square Root Extended	RRE	Arithmetic Instructions	390
B337	MEER	Multiply (Short*Short to Short)	RRE	Arithmetic Instructions	390
B338	MAYLR	Multiply and Add Unnormalized (Long>Ext. Low)	RRD	Arithmetic Instructions	Z
B339	MYLR	Multiply Unnormalized (Long>Ext. Low)	RRD	Arithmetic Instructions	Z
B33A	MAYR	Multiply and Add Unnormalized (Long>Extended)	RRD	Arithmetic Instructions	Z
B33B	MYR	Multiply Unnormalized (Long>Extended)	RRD	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B33C	MAYHR	Multiply and Add Unnormalized (Long>Ext. High)	RRD	Arithmetic Instructions	Z
B33D	MYHR	Multiply Unnormalized (Long>Ext. High)	RRD	Arithmetic Instructions	Z
B33E	MADR	Multiply and Add Long	RRF	Arithmetic Instructions	390
B33F	MSDR	Multiply and Subtract Long	RRF	Arithmetic Instructions	390
B340	LPXBR	Load Positive Extended	RRE	Data Transfer Instructions	390
B341	LNXBR	Load Negative Extended	RRE	Data Transfer Instructions	390
B342	LTXBR	Load and Test Extended	RRE	Data Transfer Instructions	390
B343	LCXBR	Load Complement Extended	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B344	LEDBR	Load Rounded Long/Short	RRE	Data Transfer Instructions	390
B344	LEDBRA	Load Rounded Long/Short	RRF-e	Data Transfer Instructions	Z
B345	LDXBR	Load Rounded Extended/Long	RRE	Data Transfer Instructions	390
B345	LDXBRA	Load Rounded Extended/Long	RRF-e	Data Transfer Instructions	Z
B346	LEXBR	Load Rounded Extended/Short	RRE	Data Transfer Instructions	390
B346	LEXBRA	Load Rounded Extended/Short	RRF-e	Data Transfer Instructions	Z
B347	FIXBR	Load FP Integer Extended	RRF-e	Data Transfer Instructions	390
B348	KXBR	Compare and Signal Extended	RRE	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B349	CXBR	Compare Extended	RRE	Logic Instructions	390
B34A	AXBR	Add Extended	RRE	Arithmetic Instructions	390
B34B	SXBR	Subtract Extended	RRE	Arithmetic Instructions	390
B34C	MXBR	Multiply Extended	RRE	Arithmetic Instructions	390
B34D	DXBR	Divide Extended	RRE	Arithmetic Instructions	390
B350	TBEDR	Convert Short to Long	RRF	Data Transfer Instructions	390
B351	TBDR	Convert Long	RRF	Data Transfer Instructions	390
B353	DIEBR	Divide to Integer Short	RRF	Arithmetic Instructions	390
B357	FIEBR	Load FP Integer Short	RRF-e	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B357	FIEBRA	Load FP Integer Short	RRF-e	Data Transfer Instructions	Z
B358	THDER	Convert Short to Long	RRE	Data Transfer Instructions	390
B359	THDR	Convert Long	RRE	Data Transfer Instructions	390
B35B	DIDBR	Divide to Integer Long	RRF	Arithmetic Instructions	390
B35F	FIDBR	Load FP Integer Long	RRF-e	Data Transfer Instructions	390
B35F	FIDBRA	Load FP Integer Long	RRF-e	Data Transfer Instructions	Z
B360	LPXR	Load Positive Extended	RRE	Data Transfer Instructions	390
B361	LNXR	Load Negative Extended	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B362	LTXR	Load and Test Extended	RRE	Data Transfer Instructions	390
B363	LCXR	Load Complement Extended	RRE	Data Transfer Instructions	390
B365	LXR	Load Extended	RRE	Data Transfer Instructions	390
B366	LEXR	Load Rounded Extended/Short	RRE	Data Transfer Instructions	390
B367	FIXR	Load FP Integer Extended	RRF-e	Data Transfer Instructions	390
B367	FIXRA	Load FP Integer Extended	RRF-e	Data Transfer Instructions	Z
B369	CXR	Compare Extended	RRE	Logic Instructions	390
B370	LPDFR	Load Positive (Long)	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B371	LNDFR	Load Negative (Long)	RRE	Data Transfer Instructions	390
B372	CPSDR	Copy Sign (Long)	RRF	Other Instructions	390
B373	LCDFR	Load Complement (Long)	RRE	Data Transfer Instructions	390
B374	LZER	Load Zero (Short)	RRE	Data Transfer Instructions	390
B375	LZDR	Load Zero (Long)	RRE	Data Transfer Instructions	390
B376	LZXR	Load Zero (Extended)	RRE	Data Transfer Instructions	390
B377	FIER	Load FP Integer (Short)	RRE	Data Transfer Instructions	390
B37F	FIDR	Load FP Integer (Long)	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B384	SFPC	Set FPC	RRE	Other Instructions	390
B385	SFASR	Set FPC and Signal	RRE	Other Instructions	390
B38C	EFPC	Extract FPC	RRE	Other Instructions	390
B390	CELBRA	Convert from Logical (32/Short)	RRF-e	Other Instructions	Z
B391	CDLBRA	Convert from Logical (32/Long)	RRF-e	Other Instructions	Z
B392	CXLBRA	Convert from Logical (32/Extended)	RRF-e	Other Instructions	Z
B394	CEFBR	Convert from Fixed (32/Short)	RRE	Other Instructions	390
B394	CEFBRA	Convert from Fixed (32/Short)	RRF-e	Other Instructions	Z
B395	CDFBR	Convert from Fixed (32/Long)	RRE	Other Instructions	390
B395	CDFBRA	Convert from Fixed (32/Long)	RRF-e	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B396	CXFBR	Convert from Fixed (32/Extended)	RRE	Other Instructions	390
B396	CXFBRA	Convert from Fixed (32/Extended)	RRF-e	Other Instructions	Z
B398	CFEBR	Convert to Fixed (32/Short)	RRF-e	Other Instructions	390
B398	CFEBRA	Convert to Fixed (32/Short)	RRF-e	Other Instructions	Z
B399	CFDBR	Convert to Fixed (32/Long)	RRF-e	Other Instructions	390
B399	CFDBRA	Convert to Fixed (32/Long)	RRF-e	Other Instructions	Z
B39A	CFXBR	Convert to Fixed (32/Extended)	RRF-e	Other Instructions	390
B39A	CFXBRA	Convert to Fixed (32/Extended)	RRF-e	Other Instructions	Z
B39C	CLFEBR	Convert to Logical (32/Short)	RRF-e	Other Instructions	Z
B39D	CLFDBR	Convert to Logical (32/Long)	RRF-e	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B39E	CLFXBR	Convert to Logical (32/Extended)	RRF-e	Other Instructions	Z
B3A0	CELBRA	Convert from Logical (64/Short)	RRF-e	Other Instructions	Z
B3A1	CDLBRA	Convert from Logical (64/Long)	RRF-e	Other Instructions	Z
B3A2	CXLBRA	Convert from Logical (64/Exteded)	RRF-e	Other Instructions	Z
B3A4	CEGBR	Convert from Fixed (64/Short)	RRE	Other Instructions	Z
B3A4	CEGBRA	Convert from Fixed (64/Short)	RRF-e	Other Instructions	Z
B3A5	CDGBR	Convert from Fixed (64/Long)	RRE	Other Instructions	Z
B3A5	CDGBRA	Convert from Fixed (64/Long)	RRF-e	Other Instructions	Z
B3A6	CXGBR	Convert from Fixed (64/Exteded)	RRE	Other Instructions	Z
B3A6	CXGBRA	Convert from Fixed (64/Exteded)	RRF-e	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3A8	CGEBR	Convert to Fixed (64/Short)	RRF-e	Other Instructions	Z
B3A8	CGEBRA	Convert to Fixed (64/Short)	RRF-e	Other Instructions	Z
B3A9	CGDBR	Convert to Fixed (64/Long)	RRF-e	Other Instructions	Z
B3A9	CGDBRA	Convert to Fixed (64/Long)	RRF-e	Other Instructions	Z
B3AA	CGXBR	Convert to Fixed (64/Extended)	RRF-e	Other Instructions	Z
B3AA	CGXBRA	Convert to Fixed (64/Extended)	RRF-e	Other Instructions	Z
B3AC	CLGEBR	Convert to Logical (64/Short)	RRF-e	Other Instructions	Z
B3AD	CLGDBR	Convert to Logical (64/Long)	RRF-e	Other Instructions	Z
B3AE	CLGXBR	Convert to Logical (64/Extended)	RRF-e	Other Instructions	Z
B3B4	CEFR	Convert from Fixed (32/Short)	RRE	Other Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3B5	CDFR	Convert from Fixed (32/Long)	RRE	Other Instructions	390
B3B6	CXFR	Convert from Fixed (32/Extended)	RRE	Other Instructions	390
B3B8	CFER	Convert to Fixed (Short/32)	RRF	Other Instructions	390
B3B9	CFDR	Convert to Fixed (Long/32)	RRF	Other Instructions	390
B3BA	CFXR	Convert to Fixed (Extended/32)	RRF	Other Instructions	390
B3C1	LDGR	Load FPR from GPR (Long)	RXY	Data Transfer Instructions	390
B3C4	CEGR	Convert from Fixed (64/Short)	RRE	Other Instructions	Z
B3C5	CDGR	Convert from Fixed (64/Long)	RRE	Other Instructions	Z
B3C6	CXGR	Convert from Fixed (64/Extended)	RRE	Other Instructions	Z
B3C8	CGER	Convert to Fixed (Short/64)	RRF	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3C9	CGDR	Convert to Fixed (Long/64)	RRF	Other Instructions	Z
B3CA	CGXR	Convert to Fixed (Extended/64)	RRF	Other Instructions	Z
B3CD	LGDR	Load GPR from FPR (Long)	RXY	Data Transfer Instructions	390
B3D0	MDTR	Multiply (Long)	RRR	Arithmetic Instructions	390
B3D0	MDTRA	Multiply (Long)	RRF-a	Arithmetic Instructions	Z
B3D1	DDTR	Divide (Long)	RRF-a	Arithmetic Instructions	390
B3D2	ADTR	Add (Long)	RRF-a	Arithmetic Instructions	390
B3D2	ADTRA	Add (Long)	RRF-a	Arithmetic Instructions	Z
B3D3	SDTR	Subtract (Long)	RRF-a	Arithmetic Instructions	390
B3D3	SDTRA	Subtract (Long)	RRF-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3D4	LDETR	Load Lengthened (Short/Long)	RRF-d	Data Transfer Instructions	390
B3D5	LEDTR	Load Rounded (Long/Short)	RRF-e	Data Transfer Instructions	390
B3D6	LTDTR	Load and Test (Long)	RRE	Data Transfer Instructions	390
B3D7	FIDTR	Load Floating-Point Integer (Long)	RRF-e	Data Transfer Instructions	390
B3D8	MXTR	Multiply (Extended)	RRF-a	Arithmetic Instructions	390
B3D8	MXTRA	Multiply (Extended)	RRF-a	Arithmetic Instructions	Z
B3D9	DXTR	Divide (Extended)	RRF-a	Arithmetic Instructions	390
B3DA	AXTR	Add (Extended)	RRF-a	Arithmetic Instructions	390
B3DA	AXTRA	Add (Extended)	RRF-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3DB	SXTR	Subtract (Extended)	RRF-a	Arithmetic Instructions	390
B3DB	SXTRA	Subtract (Extended)	RRF-a	Arithmetic Instructions	Z
B3DC	LXDTR	Load Lengthened (Long/Extended)	RRF	Data Transfer Instructions	390
B3DD	LDXTR	Load Rounded (Extended/Long)	RRF	Data Transfer Instructions	390
B3DE	LTXTR	Load and Test (Extended)	RRE	Data Transfer Instructions	390
B3DF	FIXTR	Load Floating-Point Integer (Extended)	RRF	Data Transfer Instructions	390
B3E0	KDTR	Compare and Signal (Long)	RRE	Logic Instructions	390
B3E1	CGDTR	Convert to Fixed (Long/64)	RRF-e	Other Instructions	Z
B3E1	CGDTRA	Convert to Fixed (Long/64)	RRF-e	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3E2	CUDTR	Convert to 64b U.Packed (Long)	RRF	Other Instructions	390
B3E3	CSDTR	Convert to 64b S.Packed (Long)	RRF	Other Instructions	390
B3E4	CDTR	Compare (Long)	RRE	Logic Instructions	390
B3E5	EEDTR	Extract Biased Exponent (Long)	RRE	Other Instructions	390
B3E7	ESDTR	Extract Significance (Long)	RRE	Other Instructions	390
B3E8	KXTR	Compare and Signal (Extended)	RRE	Logic Instructions	390
B3E9	CGXTR	Convert to Fixed (Extended/64)	RRF-e	Other Instructions	Z
B3E9	CGXTRA	Convert to Fixed (Extended/64)	RRF-e	Other Instructions	Z
B3EA	CUXTR	Convert to 128b U.Packed (Extended)	RRF	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3EB	CSXTR	Convert to 128b S.Packed (Extended)	RRF	Other Instructions	Z
B3EC	CXTR	Compare (Extended)	RRE	Logic Instructions	390
B3ED	EEXTR	Extract Biased Exponent (Extended)	RRE	Other Instructions	Z
B3EF	ESXTR	Extract Significance (Extended)	RRE	Other Instructions	Z
B3F1	CDGTR	Convert from Fixed (64/Long)	RRE	Other Instructions	Z
B3F1	CDGTRA	Convert from Fixed (64/Long)	RRE	Other Instructions	Z
B3F2	CUSTR	Convert from 64b U.Packed (Long)	RRE	Other Instructions	390
B3F3	CDSTR	Convert from 64b S.Packed (Long)	RRE	Other Instructions	390
B3F4	CEDTR	Compare Biased Exponent (Long)	RRE	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3F5	QADTR	Quantize (Long)	RRF-b	Other Instructions	390
B3F6	IEDTR	Insert Biased Exponent (Long)	RRF-b	Other Instructions	390
B3F7	RRDTR	Reround (Long)	RRF-b	Other Instructions	390
B3F9	CXGTR	Convert from Fixed (64/Extended)	RRE	Other Instructions	Z
B3F9	CXGTRA	Convert from Fixed (64/Extended)	RRE	Other Instructions	Z
B3FA	CXUTR	Convert from 128b U.Packed (Extended)	RRE	Other Instructions	Z
B3FB	CXSTR	Convert from 128b S.Packed (Extended)	RRE	Other Instructions	Z
B3FC	CEXTR	Compare Biased Exponent (Extended)	RRE	Logic Instructions	Z
B3FD	QAXTR	Quantize (Extended)	RRF-b	Other Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B3FE	IEXTR	Insert Biased Exponent (Extended)	RRF-b	Other Instructions	390
B3FF	RRXTR	Reround (Extended)	RRF-b	Other Instructions	390
B6	STCTL	Store ConTroL	RS	Privileged Instructions	370
B7	LCTL	Load ConTroL	RS	Privileged Instructions	370
B8	LMC	Load Multiple Control	RS	Privileged Instructions	390
B900	LPGR	Load Positive Register (64 bit)		Data Transfer Instructions	Z
B901	LNGR	Load Negative Register (64 bit)		Data Transfer Instructions	Z
B902	LTGR	Load and Test Register (64 bit)		Data Transfer Instructions	Z
B903	LCGR	Load and Complement Register (64 bit)	RRE	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B904	LGR	Load Register (64 bit)	RRE	Data Transfer Instructions	Z
B905	LURAG	Load Using Real Address (64 bit)	RRE	Privileged Instructions	Z
B906	LGBR	Load Byte (8/64)	RRE	Data Transfer Instructions	Z
B908	AGR	Add (64)	RRE	Arithmetic Instructions	Z
B909	SGR	Subtract (64)	RRE	Arithmetic Instructions	Z
B90A	ALGR	Add Logical (64)	RRE	Arithmetic Instructions	Z
B90B	SLGR	Subtract Logical (64)	RRE	Arithmetic Instructions	Z
B90C	MSGR	Multiply Single (64)	RRE	Arithmetic Instructions	Z
B90D	DSGR	Divide Single (64)	RRE	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B90E	EREGG	Extract Stacked Registers (64)	RRE	Data Transfer Instructions	Z
B90F	LRVGR	Load Reserved (64)	RRE	Data Transfer Instructions	Z
B910	LPGFR	Load Positive (32/64)	RRE	Data Transfer Instructions	Z
B911	LNGFR	Load Negative (32/64)	RRE	Data Transfer Instructions	Z
B912	LTGFR	Load And Test (32/64)	RRE	Data Transfer Instructions	Z
B913	LCGFR	Load Complement (32/64)	RRE	Data Transfer Instructions	Z
B914	LGFR	Load (32/64)	RRE	Data Transfer Instructions	Z
B916	LLGFR	Load Logical (32/64)	RRE	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B917	LLGTR	Load Logical Thirty One Bits (31/64)	RRE	Data Transfer Instructions	Z
B918	AGFR	Add (32/64)	RRE	Arithmetic Instructions	Z
B919	SGFR	Subtract (32/64)	RRE	Arithmetic Instructions	Z
B91A	ALGFR	Add Logical (32/64)	RRE	Arithmetic Instructions	Z
B91B	SLGFR	Subtract Logical (32/64)	RRE	Arithmetic Instructions	Z
B91C	MSGFR	Multiply Single (32/64)	RRE	Arithmetic Instructions	Z
B91D	DSGFR	Divide Single (32/64)	RRE	Arithmetic Instructions	Z
B91F	LRVR	Load Reversed (32)	RRE	Data Transfer Instructions	390
B920	CGR	Compare (64)	RRE	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B921	CLGR	Compare Logical (64)	RRE	Logic Instructions	Z
B925	STURG	Store Using Real Address	RRE	Privileged Instructions	390
B926	LBR	Load Byte (8/32)	RRE	Data Transfer Instructions	390
B927	LHR	Load Halfword (32<16)	RRE	Data Transfer Instructions	Z
B928	PCKMO	Perform Cryptographic Key Mgmt Operations	RRE	Privileged Instructions	Z
B929	KMA	cipher Message with Authentication	RRF-b	Other Instructions	Z
B92A	KMF	cipher Message with cipher Feedback	RRE	Other Instructions	Z
B92B	KMO	cipher Message with Output feedback	RRE	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B92C	PCC	Perform Cryptographic Computation	RRE	Other Instructions	Z
B92D	KMCTR	cipher Message with CounTeR	RRF-b	Other Instructions	Z
B92E	KM	cipher Message	RRE	Other Instructions	Z
B92F	KMC	cipher Message with Chaining	RRE	Other Instructions	Z
B930	CGFR	Compare (32/64)	RRE	Logic Instructions	Z
B931	CLGFR	Compare Logical (32/64)	RRE	Logic Instructions	Z
B938	SORTL	Sort List	RRE	Other Instructions	Z
B939	DFLTCC	deflate conversion call	RRF-a	Other Instructions	Z
B93A	KDSA	compute digital signature authentication	RRE	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B93C	PRNO	perform random number operation	RRE	Other Instructions	Z
B93E	KIMD	compute intermediate message digest	RRE	Other Instructions	Z
B93F	KLMD	compute last message digest	RRE	Other Instructions	Z
B941	CFDTR	Convert to fixed (Long Dfp to 32)	RRF-e	Other Instructions	Z
B942	CLGDTR	Convert to logical (Long Dfp to 64)	RRF-e	Other Instructions	Z
B943	CLFDTR	Convert to logical (Long Dfp to 32)	RRF-e	Other Instructions	Z
B946	BCTGR	Branch on CounT (64)	RRE	Branch Instructions	Z
B949	CFXTR	Convert to Fixed (eXtended Dfp to 32)	RRF-e	Other Instructions	Z
B94A	CLGXTR	Convert to Logical (eXtended Dfp to 64)	RRF-e	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B94B	CLFXTR	Convert to Logical (eXtended Dfp to 32)	RRF-e	Other Instructions	Z
B951	CDFTR	Convert from fixed (32 to Long Dfp)	RRE	Other Instructions	Z
B952	CDLGTR	Convert from Logical (64 to Long Dfp)	RRF-e	Other Instructions	Z
B953	CDLFTR	Convert from Logical (32 to Long Dfp)	RRF-e	Other Instructions	Z
B959	CXFTR	Convert from Fixed (32 to eXtended Dfp)	RRE	Other Instructions	Z
B95A	CXLGTR	Convert from Logical (64 to eXtended Dfp)	RRF-e	Other Instructions	Z
B95B	CXLFTR	Convert from Logical (32 to eXtended Dfp)	RRF-e	Other Instructions	Z
B960	CGRT	Compare and Trap (64)	RRF-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B960-2	CRTH	Compare and Trap on High (32)	RRF-c	Logic Instructions	Z
B960-4	CRTL	Compare and Trap on Low (32)	RRF-c	Logic Instructions	Z
B960-7	CRTE	Compare and Trap on Equal(32)	RRF-c	Logic Instructions	Z
B960-8	CRTNE	Compare and Trap on Not Equal (32)	RRF-c	Logic Instructions	Z
B960-A	CRTNL	Compare and Trap on Not Low (32)	RRF-c	Logic Instructions	Z
B960-C	CRTNH	Compare and Trap on Not High (32)	RRF-c	Logic Instructions	Z
B961	CLGRT	Compare Logical and Trap (64)	RRF	Logic Instructions	Z
B964	NNGRK	Nand (64)	RRF-a	Other Instructions	Z
B965	OCGRK	Or with Complement (64)	RRF-a	Other Instructions	Z
B966	NOGRK	Nor (64)	RRF-a	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B967	NXGRK	Not eXclusive or (64)	RRF-a	Other Instructions	Z
B972	CRT	Compare and Trap (32)	RRF-c	Logic Instructions	Z
B972-2	CRTH	Compare and Trap on High (32)	RRF-c	Logic Instructions	Z
B972-4	CRTL	Compare and Trap on Low (32)	RRF-c	Logic Instructions	Z
B972-7	CRTE	Compare and Trap on Equal(32)	RRF-c	Logic Instructions	Z
B972-8	CRTNE	Compare and Trap on Not Equal (32)	RRF-c	Logic Instructions	Z
B972-A	CRTNL	Compare and Trap on Not Low (32)	RRF-c	Logic Instructions	Z
B972-C	CRTNH	Compare and Trap on Not High (32)	RRF-c	Logic Instructions	Z
B973	CLRT	Compare Logical and Trap (32)	RRF-c	Logic Instructions	Z
B973-2	CLRTH	Compare Logical and Trap on High (32)	RRF-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B973-4	CLRTL	Compare Logical and Trap on Low (32)	RRF-c	Logic Instructions	Z
B973-7	CLRTE	Compare Logical and Trap on Equal(32)	RRF-c	Logic Instructions	Z
B973-8	CLRTNE	Compare Logical and Trap on Not Equal (32)	RRF-c	Logic Instructions	Z
B973-A	CLRTNL	Compare Logical and Trap on Not Low (32)	RRF-c	Logic Instructions	Z
B973-C	CLRTNH	Compare Logical and Trap on Not High (32)	RRF-c	Logic Instructions	Z
B974	NNRK	Nand (32)	RRF-a	Other Instructions	Z
B975	OCRK	Or with Complement (32)	RRF-a	Other Instructions	Z
B976	NORK	Nor (32)	RRF-a	Other Instructions	Z
B977	NXRK	Not eXclusive or (32)	RRF-a	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B980	NGR	aNd (64)	RRE	Arithmetic Instructions	Z
B981	OGR	Or (64)	RRE	Arithmetic Instructions	Z
B982	XGR	eXclusive or (64)	RRE	Arithmetic Instructions	Z
B984	LLGCR	Load Logical Character (8/64)	RRE	Data Transfer Instructions	Z
B985	LLGHR	Load Logical Halfword (16/64)	RRE	Data Transfer Instructions	Z
B986	MLGR	Multiply Logical (64/128)	RRE	Arithmetic Instructions	Z
B987	DLGR	Divide Logical (128/64)	RRE	Arithmetic Instructions	Z
B988	ALCGR	Add Logical with Carry (64)	RRE	Arithmetic Instructions	Z
B989	SLBGR	Subtract Logical with Borrow (64)	RRE	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B98D	EPSW	Extract PSW	RRE	Other Instructions	390
B98E	IDTE	Invalidate DAT Table Entry	RRF-b	Privileged Instructions	Z
B98F	CRDTE	Compare and Replace DAT Table Entry	RRF-b	Privileged Instructions	Z
B990	TRTT	Translate Two To Two	RRF-c	Data Transfer Instructions	390
B991	TRTO	Translate Two To One	RRF-c	Data Transfer Instructions	390
B992	TROT	Translate One To Two	RRF-c	Data Transfer Instructions	390
B993	TROO	Translate One To One	RRF-c	Data Transfer Instructions	390
B994	LLCR	Load Logical Character (8/32)	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B995	LLHR	Load Logical Halfword (16/32)	RRE	Data Transfer Instructions	390
B996	MLR	Multiply Logical (32/64)	RRE	Arithmetic Instructions	Z
B997	DLR	Divide Logical (64/32)	RRE	Arithmetic Instructions	Z
B998	ALCR	Add Logical with Carry	RRE	Arithmetic Instructions	390
B999	SLBR	Subtract Logical with Borrow	RRE	Arithmetic Instructions	390
B99A	EPAIR	Extract Primary ASN and Instance	RRE	Privileged Instructions	Z
B99B	ESAIR	Extract Secondary ASN and Instance	RRE	Privileged Instructions	Z
B99D	ESEA	Extract and Set Extended Authority	RRE	Privileged Instructions	390
B99E	PTI	Program Transfer with Instance	RRE	Privileged Instructions	Z
B99F	SSAIR	Set Secondary ASN and Instance	RRE	Privileged Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B9A1	TPEI	Test Pending External Interruption	RRE	Privileged Instructions	Z
B9A2	PTF	Perform Topology Function	RRE	Privileged Instructions	Z
B9AA	LPTEA	Load Page Table Entry Address	RRF-b	Privileged Instructions	Z
B9AC	IRBM	Insert Reference Bits Multiple	RRE	Control Flow Instructions	Z
B9AE	RRBM	Reset Reference Bits Multiple	RRE	Privileged Instructions	Z
B9AF	PFMF	Perform Frame Management Function	RRE	Privileged Instructions	Z
B9B0	CU14	Convert UTF-8 to UTF-32	RRF-c	Data Transfer Instructions	390
B9B1	CU24	Convert UTF-16 to UTF-32	RRF-c	Data Transfer Instructions	390
B9B2	CU41	Convert UTF-32 to UTF-8	RRE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B9B3	CU42	Convert UTF-32 to UTF-16	RRE	Data Transfer Instructions	390
B9BD	TRTE	TRanslate and Test Reverse Extended	RRF-c	Data Transfer Instructions	390
B9BE	SRSTU	Search String Unicode	RRE	Logic Instructions	Z
B9BF	TRTE	TRanslate and Test Extended	RRF-c	Data Transfer Instructions	390
B9C0	SELFHR	SELect High (32)	RRF-a	Other Instructions	Z
B9C8	AHHHR	Add High (32)	RRF-a	Arithmetic Instructions	Z
B9C9	SHHHR	Subtract High (32)	RRF-a	Arithmetic Instructions	Z
B9CA	ALHHHR	Add Logical High (32)	RRF-a	Arithmetic Instructions	Z
B9CB	SLHHHR	Subtract Logical High (32)	RRF-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B9CD	CHHR	Compare High (32)	RRE	Logic Instructions	Z
B9CF	CLHHR	Compare Logical High (32)	RRE	Logic Instructions	Z
B9D8	AHHLR	Add High (32)	RRF-a	Arithmetic Instructions	Z
B9D9	SHHLR	Subtract High (32)	RRF-a	Arithmetic Instructions	Z
B9DA	ALHHLR	Add Logical High (32)	RRF-a	Arithmetic Instructions	Z
B9DB	SLHHLR	Subtract Logical High (32)	RRF-a	Arithmetic Instructions	Z
B9DD	CHLR	Compare High (32)	RRE	Logic Instructions	Z
B9DF	CLHLR	Compare Logical High (32)	RRE	Logic Instructions	Z
B9E0	LOCFHR	Load High on Condition (32)	RRF-c	Other Instructions	Z
B9E1	POPCNT	POPulation CouNT	RRF-c	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B9E2	LOCGR	Load on Condition (64)	RRF-c	Other Instructions	Z
B9E3	SELGR	SELect (64)	RRF-a	Logic Instructions	Z
B9E4	NGRK	aNd (64)	RRF-a	Arithmetic Instructions	Z
B9E5	NCGRK	aNd with Complement (64)	RRF-a	Arithmetic Instructions	Z
B9E6	OGRK	OR (64)	RRF-a	Arithmetic Instructions	Z
B9E7	XGRK	eXclusive or (64)	RRF-a	Arithmetic Instructions	Z
B9E8	AGRK	Add (64)	RRF-a	Arithmetic Instructions	Z
B9E9	SGRK	Subtract (64)	RRF-a	Arithmetic Instructions	Z
B9EA	ALGRK	Add Logical (64)	RRF-a	Arithmetic Instructions	Z
B9EB	SLGRK	Subtract Logical (64)	RRF-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B9EC	MGRK	Multiply (128<64)	RRF-a	Arithmetic Instructions	Z
B9ED	MSGRKC	Multiply Single (64)	RRF-a	Arithmetic Instructions	Z
B9F0	SELR	SELect (32)	RRF-a	Logic Instructions	Z
B9F2	LOCR	Load On Condition (32)	RRF-c	Data Transfer Instructions	Z
B9F4	NRK	aNd (32)	RRF-a	Arithmetic Instructions	Z
B9F5	NCRK	aNd with Complement (32)	RRF-a	Arithmetic Instructions	Z
B9F6	ORK	OR (32)	RRF-a	Arithmetic Instructions	Z
B9F7	XRK	eXclusive or (32)	RRF-a	Arithmetic Instructions	Z
B9F8	ARK	Add (32)	RRF-a	Arithmetic Instructions	Z
B9F9	SRK	Subtract (32)	RRF-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
B9FA	ALRK	Add Logical (32)	RRF-a	Arithmetic Instructions	Z
B9FB	SLRK	Subtract Logical (32)	RRF-a	Arithmetic Instructions	Z
B9FD	MSRKC	Multiply Single (32)	RRF-a	Arithmetic Instructions	Z
BA	CS	Compare and Swap	RS	Logic Instructions	370
BB	CDS	Compare Double and Swap	RS	Logic Instructions	370
BD	CLM	Compare Logical Chars. under Mask	RS	Logic Instructions	370
BE	STCM	Store Characters under Mask	RS	Data Transfer Instructions	370
BF	ICM	Insert Characters under Mask	RS	Data Transfer Instructions	370
C00	LARL	Load Address Relative Long	RIL	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C01	LGFI	Load Immediate (32/64)	RIL	Data Transfer Instructions	Z
C04	BRCL	Branch Relative on Condition Long	RIL	Branch Instructions	390
C04	JCL	Jump on Condition Long	RIL	Branch Instructions	390
C04-0	BRUL	No Operation	RIL	Branch Instructions	390
C04-0	JLNOP	No Operation	RIL	Branch Instructions	390
C04-1	BROL	Branch Relative Long on Overflow	RIL	Branch Instructions	390
C04-1	JLO	Jump Long on Overflow	RIL	Branch Instructions	390
C04-2	BRHL	Branch Relative Long on High	RIL	Branch Instructions	390
C04-2	JLH	Jump Long on High	RIL	Branch Instructions	390
C04-2	BRPL	Branch Relative Long on Plus	RIL	Branch Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C04-2	JLP	Jump Long on Plus	RIL	Branch Instructions	390
C04-4	BRLL	Branch Relative Long on Low	RIL	Branch Instructions	390
C04-4	JLL	Jump Long on Low	RIL	Branch Instructions	390
C04-4	BRML	Branch Relative Long on Minus	RIL	Branch Instructions	390
C04-4	JLM	Jump Long on Minus	RIL	Branch Instructions	390
C04-7	BRNEL	Branch Relative Long on Not Equal	RIL	Branch Instructions	390
C04-7	JLNE	Jump Long on Not Equal	RIL	Branch Instructions	390
C04-7	BRNZL	Branch Relative Long on Not Zero	RIL	Branch Instructions	390
C04-7	JLNZ	Jump Long on Not Zero	RIL	Branch Instructions	390
C04-8	BREL	Branch Relative Long on Equal	RIL	Branch Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C04-8	JLEQ	Jump Long on Equal	RIL	Branch Instructions	390
C04-8	BRZL	Branch Relative Long on Zero	RIL	Branch Instructions	390
C04-8	JLZ	Jump Long on Zero	RIL	Branch Instructions	390
C04-B	BRLL	Branch Relative Long on Not Low	RIL	Branch Instructions	390
C04-B	JLL	Jump Long on Not Low	RIL	Branch Instructions	390
C04-B	BRNML	Branch Relative Long on Not Minus	RIL	Branch Instructions	390
C04-B	JLNM	Jump Long on Not Minus	RIL	Branch Instructions	390
C04-D	BRNHL	Branch Relative Long on Not High	RIL	Branch Instructions	390
C04-D	JLNH	Jump Long on Not High	RIL	Branch Instructions	390
C04-D	BRNPL	Branch Relative Long on Not Plus	RIL	Branch Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C04-D	JLNP	Jump Long on Not Plus	RIL	Branch Instructions	390
C04-E	BRNOL	Branch Relative Long on Not Overflow	RIL	Branch Instructions	390
C04-E	JLNO	Jump Long on Not Overflow	RIL	Branch Instructions	390
C04-F	BRUL	Unconditional Branch Relative Long	RIL	Branch Instructions	390
C04-F	JLU	Unconditional Jump Long	RIL	Branch Instructions	390
C05	BRASL	Branch Relative and Save Long	RIL	Branch Instructions	390
C06	XIHF	eXclusive Or Immediate (high)	RIL	Arithmetic Instructions	390
C07	XILF	eXclusive Or Immediate (low)	RIL	Arithmetic Instructions	390
C08	IIHF	Insert Immediate (high)	RIL	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C09	IILF	Insert Immediate (low)	RIL	Data Transfer Instructions	390
C0A	NIHF	aNd Immediate (high)	RIL	Arithmetic Instructions	390
C0B	NILF	aNd Immediate (low)	RIL	Arithmetic Instructions	390
C0C	OIHF	Or Immediate (high)	RIL	Arithmetic Instructions	390
C0D	OILF	Or Immediate (low)	RIL	Arithmetic Instructions	390
C0E	LLIHF	Load Logical Immediate (high)	RIL	Data Transfer Instructions	390
C0F	LLILF	Load Logical Immediate (low)	RIL	Data Transfer Instructions	390
C20	MSGFI	Multiply Single Immediate (32/64)	RIL	Arithmetic Instructions	Z
C21	MSFI	Multiply Single Immediate (32)	RIL	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C24	SLGFI	Subtract Logical Immediate (32/64)	RIL	Arithmetic Instructions	Z
C25	SLFI	Subtract Logical Immediate (32)	RIL	Arithmetic Instructions	Z
C28	AGFI	Add Immediate (32/64)	RIL	Arithmetic Instructions	Z
C29	AFI	Add Immediate (32)	RIL	Arithmetic Instructions	Z
C2A	ALGFI	Add Logical Immediate (32/64)	RIL	Arithmetic Instructions	Z
C2B	ALFI	Add Logical Immediate (32)	RIL	Arithmetic Instructions	Z
C2C	CGFI	Compare Immediate (32/64)	RIL	Logic Instructions	Z
C2D	CFI	Compare Immediate (32)	RIL	Logic Instructions	Z
C2E	CLGFI	Compare Logical Immediate (32/64)	RIL	Logic Instructions	Z
C2F	CLFI	Compare Logical Immediate (32)	RIL	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C42	LLHRL	Load Logical Halfword Relative Long (16/32)	RIL	Data Transfer Instructions	390
C44	LGHRL	Load Halfword Relative Long (16/64)	RIL	Data Transfer Instructions	Z
C45	LHRL	Load Halfword Relative Long (16/32)	RIL	Data Transfer Instructions	Z
C46	LLGHRL	Load Logical Halfword Relative Long (16/64)	RIL	Data Transfer Instructions	Z
C47	STHRL	STore Halfword Relative Long	RIL	Data Transfer Instructions	Z
C48	LGRL	Load Relative Long (64)	RIL	Data Transfer Instructions	Z
C4B	STGRL	STore Relative Long (64)	RIL	Data Transfer Instructions	Z
C4C	LGFRL	Load Relative Long (32/64)	RIL	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C4D	LRL	Load Relative Long (32)	RIL	Data Transfer Instructions	Z
C4E	LLGFRL	Load Logical Relative Long (32/64)	RIL	Data Transfer Instructions	Z
C4F	STRL	Store Relative Long (32)	RIL	Data Transfer Instructions	390
C60	EXRL	Execute Relative Long	RIL	Control Flow Instructions	390
C62	PFDRL	Prefetch Data Relative Long	RIL	Data Transfer Instructions	390
C64	CGHRL	Compare Halfword Relative Long (16/64)	RIL	Logic Instructions	Z
C65	CHRL	Compare Halfword Relative Long (16/32)	RIL	Logic Instructions	390
C66	CLGHRL	Compare Logical Relative Long (16/64)	RIL	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C67	CLHRL	Compare Logical Relative Long (16/32)	RIL	Logic Instructions	390
C68	CGRL	Compare Relative Long (64)	RIL	Logic Instructions	Z
C6A	CLGRL	Compare Logical Relative Long (64)	RIL	Logic Instructions	Z
C6C	CGFRL	Compare Logical Relative Long (32/64)	RIL	Logic Instructions	Z
C6D	CRL	Compare Relative Long (32)	RIL	Logic Instructions	390
C6E	CLGFRL	Compare Logical Relative Long (32/64)	RIL	Logic Instructions	Z
C6F	CLRL	Compare Logical Relative Long (32)	RIL	Logic Instructions	390
C80	MVCOS	MoVe Characters with Optional Specifications	SSF	Control Flow Instructions	390
C61	ECTG	Extract Cpu Time	SSF	Other Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
C62	CSST	Compare and Swap and STore	SSF	Logic Instructions	390
C7	BPP	Branch Prediction Preload	SMI	Branch Instructions	Z
C84	LPD	Load Pair Disjoint (32)	SSF	Data Transfer Instructions	Z
C85	LPDG	Load Pair Disjoint (64)	SSF	Data Transfer Instructions	Z
CC6	BRCTH	Branch Relative on CounT High (32)	RIL-b	Branch Instructions	Z
CC8	AIH	Add Immediate High (32)	RIL-a	Arithmetic Instructions	Z
CCA	ALSIH	Add Logical with Signed Immediate High (32)	RIL-a	Arithmetic Instructions	Z
CCB	ALSIHN	Add Logical with Signed Immediate High (32)	RIL-a	Other Instructions	Z
CCD	CIH	Compare Immediate High (32)	RIL-a	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
CCF	CLIH	Compare Logical Immediate High (32)	RIL-a	Logic Instructions	Z
DD	TRTR	TRanslate and Test Reverse	SS-a	Data Transfer Instructions	390
D1	MVN	MoVe Numeric	SS-a	Data Transfer Instructions	360
D2	MVC	MoVe Character	SS-a	Data Transfer Instructions	360
D3	MVZ	MoVe Zone	SS-a	Data Transfer Instructions	360
D4	NC	aNd Character	SS-a	Data Transfer Instructions	360
D5	CLC	Compare Logical Character	SS-a	Logic Instructions	360
D6	OC	Or Character	SS-a	Data Transfer Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
D7	XC	eXclusive-or Character	SS-a	Data Transfer Instructions	360
D9	MVCK	Move Character with Key	SS-d	Control Flow Instructions	370
DA	MVCP	Move Character to Primary	SS-d	Control Flow Instructions	370
DB	MVCS	Move Character to Secondary	SS-d	Control Flow Instructions	370
DC	TR	TRanslate	SS-a	Data Transfer Instructions	360
DD	TRT	TRanslate and Test	SS-a	Data Transfer Instructions	360
DE	ED	EDit	SS-a	Data Transfer Instructions	360
DF	EDMK	EDit and MarK	SS-a	Data Transfer Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E1	PKU	PacK (Unicode)	SS-f	Data Transfer Instructions	390
E2	UNPKU	UNPacK (Unicode)	SS-a	Data Transfer Instructions	390
E302	LTG	Load and Test (64)	RXY-a	Data Transfer Instructions	Z
E303	LRAG	Load Real Address (64)	RXY-a	Other Instructions	390
E304	LG	Load (64)	RXY-a	Data Transfer Instructions	Z
E306	CVBY	ConVert to Binary (32)	RXY-a	Data Transfer Instructions	390
E308	AG	Add (64)	RXY-a	Arithmetic Instructions	Z
E309	SG	Subtract (64)	RXY-a	Arithmetic Instructions	Z
E30A	ALG	Add Logical (64)	RXY-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E30B	SLG	Subtract Logical (64)	RXY-a	Arithmetic Instructions	Z
E30C	MSG	Multiply single (64)	RXY-a	Arithmetic Instructions	390
E30D	DSG	Divide single (64)	RXY-a	Arithmetic Instructions	390
E30E	CVBG	ConVert to Binary (64)	RXY-a	Data Transfer Instructions	390
E30F	LRVG	Load ReVersed (64)	RXY-a	Data Transfer Instructions	390
E312	LT	Load and Test (32)	RXY-a	Data Transfer Instructions	390
E313	LRAY	Load Real Address (32)	RXY-a	Other Instructions	390
E314	LGF	Load Fullword (32/64)	RXY-a	Data Transfer Instructions	Z
E315	LGH	Load Halfword (64)	RXY-a	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E316	LLGF	Load Logical (32/64)	RXY-a	Data Transfer Instructions	Z
E317	LLGT	Load Logical Thirty One Bits	RXY-a	Data Transfer Instructions	Z
E318	AGF	Add (32/64)	RXY-a	Arithmetic Instructions	Z
E319	SGF	Subtract (32/64)	RXY-a	Arithmetic Instructions	Z
E31A	ALGF	Add Logical (32/64)	RXY-a	Arithmetic Instructions	Z
E31B	SLGF	Subtract Logical (32/64)	RXY-a	Arithmetic Instructions	Z
E31C	MSGF	Multiply Single (32/64)	RXY-a	Arithmetic Instructions	Z
E31D	DSGF	Divide Single (32/64)	RXY-a	Arithmetic Instructions	Z
E31E	LRV	Load Reversed (32)	RXY-a	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E31F	LRVH	Load Reversed (16)	RXY-a	Data Transfer Instructions	390
E320	CG	Compare (64)	RXY-a	Logic Instructions	Z
E321	CLG	Compare Logical (64)	RXY-a	Logic Instructions	Z
E324	STG	Store (64)	RXY-a	Data Transfer Instructions	Z
E325	NTSTG	NonTransactional STore (64)	RXY-a	Data Transfer Instructions	Z
E326	CVDY	Convert to Decimal (32)	RXY-a	Data Transfer Instructions	Z
E32A	LZRG	Load and Zero Rightmost Byte (64)	RXY-a	Data Transfer Instructions	Z
E32E	CVDG	Convert to Decimal (64)	RXY-a	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E32F	STRVG	SToRe ReVersed (64)	RXY-a	Data Transfer Instructions	Z
E330	CGF	Compare Fullword (32/64)	RXY-a	Logic Instructions	Z
E331	CLGF	Compare Logical (32/64)	RXY-a	Logic Instructions	Z
E332	LTGF	Load and Test (32/64)	RXY-a	Logic Instructions	Z
E334	CGH	Compare Halfword (16/64)	RXY-a	Logic Instructions	Z
E336	PFD	PreFetch Data	RXY-b	Data Transfer Instructions	390
E338	AGH	Add Halfword (64<16)	RXY-a	Other Instructions	Z
E339	SGH	Subtract Halfword (64<16)	RXY-a	Other Instructions	Z
E33A	LLZRGF	Load Logical and Zero Rightmost Byte (64<32)	RXY-a	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E33B	LZRF	Load and Zero Rightmost Byte (32)	RXY-a	Other Instructions	Z
E33C	MGH	Multiply Halfword (64<16)	RXY-a	Other Instructions	Z
E33E	STRV	STore ReVersed (32)	RXY-a	Data Transfer Instructions	390
E33F	STRVH	STore ReVersed (16)	RXY-a	Data Transfer Instructions	390
E346	BCTG	Branch on CounT (64)	RXY-a	Branch Instructions	Z
E347	BIC	Branch Indirect on Condition	RXY-b	Other Instructions	Z
E347-1	BIO	Branch Indirect on Overflow	RXY-b	Other Instructions	Z
E347-2	BIP	Branch Indirect on Plus	RXY-b	Other Instructions	Z
E347-2	BIH	Branch Indirect on High	RXY-b	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E347-4	BIM	Branch Indirect on Minus	RXY-b	Other Instructions	Z
E347-4	BIL	Branch Indirect on Low	RXY-b	Other Instructions	Z
E347-7	BINZ	Branch Indirect on Not Zero	RXY-b	Other Instructions	Z
E347-7	BINE	Branch Indirect on Not Equal	RXY-b	Other Instructions	Z
E347-8	BIZ	Branch Indirect on Zero	RXY-b	Other Instructions	Z
E347-8	BIE	Branch Indirect on Equal	RXY-b	Other Instructions	Z
E347-B	BINM	Branch Indirect on Not Minus	RXY-b	Other Instructions	Z
E347-B	BINL	Branch Indirect on Not Low	RXY-b	Other Instructions	Z
E347-D	BINP	Branch Indirect on Not Plus	RXY-b	Other Instructions	Z
E347-D	BINH	Branch Indirect on Not High	RXY-b	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E347-E	BINO	Branch Indirect on No Overflow	RXY-b	Other Instructions	Z
E347-F	BI	Branch Indirect	RXY-b	Other Instructions	Z
E348	LLGFSG	Load Logical and Shift Guarded (64<32)	RXY-a	Other Instructions	Z
E349	STGSC	STore Guarded Storage Controls	RXY-a	Other Instructions	Z
E34C	LGG	Load Guarded (64)	RXY-a	Other Instructions	Z
E34D	LGSC	Load Guarded Storage Controls	RXY-a	Other Instructions	Z
E350	STY	Store (32)	RXY-a	Data Transfer Instructions	Z
E351	MSY	Multiply Single (32)	RXY-a	Arithmetic Instructions	Z
E353	MSC	Multiply Single (32)	RXY-a	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E354	NY	aNd (32)	RXY-a	Arithmetic Instructions	Z
E355	CLY	Compare Logical (32)	RXY-a	Logic Instructions	Z
E356	OY	Or (32)	RXY-a	Arithmetic Instructions	Z
E357	XY	eXclusive or (32)	RXY-a	Arithmetic Instructions	Z
E358	LY	Load (32)	RXY-a	Data Transfer Instructions	Z
E359	CY	Compare (32)	RXY-a	Logic Instructions	Z
E35A	AY	Add (32)	RXY-a	Arithmetic Instructions	Z
E35B	SY	Subtract (32)	RXY-a	Arithmetic Instructions	Z
E35C	MFY	Multiply (32/64)	RXY-a	Arithmetic Instructions	Z
E35E	ALY	Add Logical (32)	RXY-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E35F	SLY	Subtract Logical (32)	RXY-a	Arithmetic Instructions	Z
E370	STHY	STore Halfword	RXY-a	Data Transfer Instructions	Z
E371	LAY	Load Address	RXY-a	Data Transfer Instructions	390
E372	STCY	STore Character	RXY-a	Data Transfer Instructions	Z
E373	ICY	Insert Character	RXY-a	Data Transfer Instructions	Z
E375	LAEY	Load Address Extended	RXY-a	Data Transfer Instructions	390
E376	LB	Load Byte (8/32)	RXY-a	Data Transfer Instructions	390
E377	LGB	Load Byte (8/64)	RXY-a	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E378	LHY	Load Halfword (32)	RXY-a	Data Transfer Instructions	Z
E379	CHY	Compare Halfword (16/32)	RXY-a	Logic Instructions	Z
E37A	AHY	Add Halfword	RXY-a	Arithmetic Instructions	Z
E37B	SHY	Subtract Halfword	RXY-a	Arithmetic Instructions	Z
E37C	MHY	Multiply Halfword (32)	RXY-a	Arithmetic Instructions	Z
E380	NG	aNd (64)	RXY-a	Arithmetic Instructions	Z
E381	OG	Or (64)	RXY-a	Arithmetic Instructions	Z
E382	XG	eXclusive or (64 bit)	RXY-a	Arithmetic Instructions	Z
E383	MSGC	Multiply Single (64)	RXY-a	Other Instructions	Z
E384	MG	Multiply (128<64)	RXY-a	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E385	LGAT	Load and Trap (64)	RXY-a	Other Instructions	Z
E386	MLG	Multiply Logical (64/128)	RXY-a	Arithmetic Instructions	Z
E387	DLG	Divide Logical (128/64)	RXY-a	Arithmetic Instructions	Z
E388	ALCG	Add Logical with Carry (64)	RXY-a	Arithmetic Instructions	Z
E389	SLBG	Subtract Logical with Borrow (64)	RXY-a	Arithmetic Instructions	Z
E38E	STPQ	STore Pair to Quadword	RXY-a	Data Transfer Instructions	Z
E38F	LPQ	Load Pair from Quadword	RXY-a	Data Transfer Instructions	Z
E390	LLGC	Load Logical Character (8/64)	RXY-a	Data Transfer Instructions	Z
E391	LLGH	Load Logical Halfword (16/64)	RXY-a	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E394	LLC	Load Logical Character (32)	RXY-a	Data Transfer Instructions	390
E395	LLH	Load Logical Halfword (16/32)	RXY-a	Data Transfer Instructions	390
E396	ML	Multiply Logical (32/64)	RXY-a	Arithmetic Instructions	390
E397	DL	Divide Logical (64/32)	RXY-a	Arithmetic Instructions	390
E398	ALC	Add Logical with Carry (32)	RXY-a	Arithmetic Instructions	390
E399	SLB	Subtract Logical with Borrow (32)	RXY-a	Arithmetic Instructions	390
E39C	LLGTAT	Load Logical Thirty one bits and Trap (64<31)	RXY-a	Other Instructions	Z
E39D	LLGFAT	Load Logical and Trap (64<32)	RXY-a	Other Instructions	Z
E39F	LAT	Load and Trap (32<32)	RXY-a	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E3C0	LBH	Load BYTE High (32<8)	RXY-a	Other Instructions	Z
E3C2	LLCH	Load Logical Character High (32<8)	RXY-a	Other Instructions	Z
E3C3	STCH	STore Character High (8)	RXY-a	Other Instructions	Z
E3C4	LHH	Load Halfword High (32<16)	RXY-a	Other Instructions	Z
E3C6	LLHH	Load Logical Halfword High (32<16)	RXY-a	Other Instructions	Z
E3C7	STHH	STore Halfword High (16)	RXY-a	Other Instructions	Z
E3C8	LFHAT	Load High and Trap (32<32)	RXY-a	Other Instructions	Z
E3CA	LFH	Load High (32)	RXY-a	Other Instructions	Z
E3CB	STFH	STore High (32)	RXY-a	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E3CD	CHF	Compare High (32)	RXY-a	Logic Instructions	Z
E3CF	CLHF	Compare Logical High (32)	RXY-a	Logic Instructions	Z
E4--		Vector Instructions	RRE	370 and 390 Only Other Instructions	370
E400	VLI	Vector Load Indirect	RRE	370 and 390 Only Data Transfer Instructions	370
E401	VSTI	Vector STore Indirect	RRE	370 and 390 Only Data Transfer Instructions	370
E410	VLID	Vector Load Indirect Double	RRE	370 and 390 Only Data Transfer Instructions	370
E401	VSTID	Vector Store Indirect Double	RRE	370 and 390 Only Data Transfer Instructions	370
E424	VSRL	Vector Shift Right single Logical	RRE	370 and 390 Only Shift	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
				and Rotate Instructions	
E425	VSLL	Vector Shift Left single Logical	RRE	370 and 390 Only Shift and Rotate Instructions	370
E428	VLBIX	Vector Load Bit IndeX	RRE	370 and 390 Only Data Transfer Instructions	370
E500	LASP	Load Address Space Parameters	SSE	Privileged Instructions	370
E501	TPROT	Test PROTection	SSE	Privileged Instructions	370
E502		Fix Page	SS	MVS Assist Other Instructions	370
E502	STRAG	STore Real Address Grande	SSE	Privileged Instructions	370
E503		SVC Assist		MVS Assist Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E504		Obtain Local Lock		MVS Assist Other Instructions	370
E505		Release Local Lock		MVS Assist Other Instructions	370
E506		Obtain CMS Lock		MVS Assist Other Instructions	370
E507		Release CMS Lock		MVS Assist Other Instructions	370
E508		Trace SVC Interruption		MVS Assist Other Instructions	370
E509		Trace Program Interruption		MVS Assist Other Instructions	370
E50A		Trace Initial SRB Dispach		MVS Assist Other Instructions	370
E50A	MVCRL	MOVE Right to Left	SSE	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E50B		Trace I/O Interruption		MVS Assist Other Instructions	370
E50C		Trace Task Dispach		MVS Assist Other Instructions	370
E50D		Trace SVC Return		MVS Assist Other Instructions	370
E50E	MVCSK	Move Characters with Source Key	SSE	Control Flow Instructions	370
E50F	MVCDK	Move Characters with Dest. Key	SSE	Control Flow Instructions	370
E518	DPFET	Divide Packed Fetch		Other Instructions	370
E544	MVHHI	Move Halfword from Halfword Immediate	SIL	Other Instructions	Z
E548	MVGHI	Move Grande from Halfword Immediate	SIL	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E54C	MVHI	Move fullword from Halfword Immediate	SIL	Other Instructions	Z
E554	CHHSI	Compare Halfword with Halfword Signed Imm.	SIL	Logic Instructions	Z
E555	CLHHSI	Comp. Log. Halfword w/Halfword Signed Imm.	SIL	Logic Instructions	Z
E558	CGHSI	Comp. Grande w/Halfword Signed Imm.	SIL	Logic Instructions	Z
E559	CLGHSI	Compare Log. Grande w/Halfword Imm.	SIL	Logic Instructions	Z
E55C	CHSI	Compare Halfword Signed Imm.	SIL	Logic Instructions	Z
E55D	CLFHSI	Compare Log. Fullword w/Halfword Signed Imm.	SIL	Logic Instructions	Z
E560	TBEGIN	Transaction BEGIN	SIL	Control Flow Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E561	TBEGINC	Transaction BEGIN Constrained	SIL	Control Flow Instructions	Z
E600		Get Free Storage Space		VM Assist Other Instructions	370
E601		Return Free Storage Space		VM Assist Other Instructions	370
E601	VLEBRH	Vector Load Byte Reversed Element (16)	VRX	Data Transfer Instructions	Z
E602		Lock Page		VM Assist Other Instructions	370
E602	VLEBRG	Vector Load Byte Reversed Element (64)	VRX	Data Transfer Instructions	Z
E603		Unlock Page		VM Assist Other Instructions	370
E603	VLEBRF	Vector Load Byte Reversed Element (32)	VRX	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E604		Decode Subsequent CCW Commands		VM Assist Other Instructions	370
E604	VLLEBRZ	Vector Load Byte Reversed Element and Zero	VRX	Data Transfer Instructions	Z
E605		Free CCW Storage		VM Assist Other Instructions	370
E605	VLBRREP	Vector Load Byte Reversed Element and REPlicate	VRX	Data Transfer Instructions	Z
E606		Locate Virtual I/O Control Blocks		VM Assist Other Instructions	370
E606	VLBR	Vector Load Byte Reversed Elements	VRX	Data Transfer Instructions	Z
E607		Dispatch a Block or Virtual Machine		VM Assist Other Instructions	370
E607	VLER	Vector Load Elements Reversed	VRX	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E608		Test Page Status		VM Assist Other Instructions	370
E609		Test Page Status and Lock		VM Assist Other Instructions	370
E609	VSTEBRH	Vector STore Byte Reversed Element (16)	VRX	Data Transfer Instructions	Z
E60A		Invalidate Segment Table		VM Assist Other Instructions	370
E60A	VSTEBRG	Vector STore Byte Reversed Element (64)	VRX	Data Transfer Instructions	Z
E60B		Invalidate Page Table		VM Assist Other Instructions	370
E60B	VSTEBRF	Vector STore Byte Reversed Element (32)	VRX	Data Transfer Instructions	Z
E60C		Decode First CCW Command		VM Assist Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E60D		Main Entry to Dispatcher		VM Assist Other Instructions	370
E60E		Locate Real I/O Control Blocks		VM Assist Other Instructions	370
E60E	VSTBR	Vector STore Byte Reversed Elements	VRX	Data Transfer Instructions	Z
E60F		Common CCW Command Processing		VM Assist Other Instructions	370
E60F	VSTER	Vector STore Elements Reversed	VRX	Data Transfer Instructions	Z
E610		Untranslate CCW		VM Assist Other Instructions	370
E611		Dispatch a Block or Virtual Machine		VM Assist Other Instructions	370
E612		Store ECPS:VM/370 Identification		VM Assist Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E613		Locate Changed Shared Page		VM Assist Other Instructions	370
E614		Get Free Storage Space (FRETX)		VM Assist Other Instructions	370
E615		Return Free Storage Space (FRETX)		VM Assist Other Instructions	370
E616		Preferred Machine Assist		VM Assist Other Instructions	370
E634	VPKZ	Vector PacK Zoned	VSI	Data Transfer Instructions	Z
E635	VLRL	Vector Load Rightmost with Length	VSI	Data Transfer Instructions	Z
E637	VLRLR	Vector Load Rightmost with Length	VRS-d	Data Transfer Instructions	Z
E63C	VUPKZ	Vector UnPack ZONED	VSI	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E63D	VSTRL	Vector STore Rightmost with Length	VSI	Data Transfer Instructions	Z
E63F	VSTRLR	Vector STore Rightmost with Length	VRS-d	Data Transfer Instructions	Z
E649	VLIP	Vector Load Immediate Decimal	VRI-h	Data Transfer Instructions	Z
E650	VCVB	Vector Convert to Binary	VRR-i	Arithmetic Instructions	Z
E652	VCVBG	Vector Convert to Binary	VRR-i	Arithmetic Instructions	Z
E658	VCVD	Vector Convert to Decimal	VRI-i	Arithmetic Instructions	Z
E659	VSRP	Vector Shift and Round Decimal	VRI-g	Shift and Rotate Instructions	Z
E65A	VCVDG	Vector Convert to Decimal	VRI-i	Arithmetic Instructions	Z
E65B	VPSOP	Vector Perform Sign OPperation Decimal	VRI-g	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E65F	VTP	Vector Test Decimal	VRR-g	Logic Instructions	Z
E671	VAP	Vector Add Decimal	VRI-f	Arithmetic Instructions	Z
E673	VSP	Vector Subtract Decimal	VRI-f	Arithmetic Instructions	Z
E677	VCP	Vector Compare Decimal	VRR-h	Logic Instructions	Z
E678	VMP	Vector Multiply Decimal	VRI-f	Arithmetic Instructions	Z
E679	VMSP	Vector Multiply and Shift Decimal	VRI-f	Arithmetic Instructions	Z
E67A	VDP	Vector Divide Decimal	VRI-f	Arithmetic Instructions	Z
E67B	VRP	Vector Remainder Decimal	VRI-f	Arithmetic Instructions	Z
E67E	VSDP	Vector Shift and Divide Decimal	VRI-f	Arithmetic Instructions	Z
E700	VLEB	Vector Load Element (8)	VRX	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E701	VLEH	Vector Load Element (16)	VRX	Data Transfer Instructions	Z
E702		SVC Handler without Trace		VS1 Assist Other Instructions	370
E702	VLEG	Vector Load Element (64)	VRX	Data Transfer Instructions	Z
E703		SVC Handler with Trace		VS1 Assist Other Instructions	370
E703	VLEF	Vector Load Element (32)	VRX	Data Transfer Instructions	Z
E704		Resume Page Measurement		VS1 Assist Other Instructions	370
E704	VLLEZ	Vector Load Logical Element and Zero	VRX	Data Transfer Instructions	Z
E705		Resume Short Term Unfix		VS1 Assist Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E705	VLREP	Vector Load and Replicate	VRX	Data Transfer Instructions	Z
E706	VL	Vector Load	VRX	Data Transfer Instructions	Z
E707		Dispatcher		VS1 Assist Other Instructions	370
E707	VLBB	Vector Load to Block Boundary	VRX	Data Transfer Instructions	Z
E708		SIO Trace		VS1 Assist Other Instructions	370
E708	VSTEB	Vector STore Element (8)	VRX	Data Transfer Instructions	Z
E709		Task Switch Trace		VS1 Assist Other Instructions	370
E709	VSTEH	Vector STore Element (16)	VRX	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E70A		I/O Interrupt Trace		VS1 Assist Other Instructions	370
E70A	VSTEG	Vector STore Element (64)	VRX	Data Transfer Instructions	Z
E70B		Store ECPS:VS2 Level		VS1 Assist Other Instructions	370
E70B	VSTEF	Vector STore Element (32)	VRX	Data Transfer Instructions	Z
E70C		Set Direct Translate Limit		VS1 Assist Other Instructions	370
E70E	VST	Vector STore	VRX	Data Transfer Instructions	Z
E710		PCB EnQueue LIFO		VS1 Assist Other Instructions	370
E712	VGEG	Vector Gather Element (64)	VRV	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E713	VGEF	Vector Gather Element (32)	VRV	Other Instructions	Z
E71A	VSCEG	Vector Scatter Element (64)	VRV	Other Instructions	Z
E71B	VSCEF	Vector Scatter Element (32)	VRV	Other Instructions	Z
E720		PCB EnQueue FIFO		VS1 Assist Other Instructions	370
E721	VLGV	Vector Load GR from VR Element	VRS-c	Data Transfer Instructions	Z
E722	VLVG	Vector Load VR Element from GR	VRS-b	Data Transfer Instructions	Z
E727	LCBB	Load Count to Block Boundary	RXE	Other Instructions	Z
E730		Double Threaded Dequeue		VS1 Assist Other Instructions	370
E730	VESL	Vector Element Shift Left	VRS-a	Shift and Rotate Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E733	VERLL	Vector Element Rotate Left Logical	VRS-a	Shift and Rotate Instructions	Z
E736	VLM	Vector Load Multiple	VRS-a	Data Transfer Instructions	Z
E737	VLL	Vector Load with Length	VRS-b	Data Transfer Instructions	Z
E738	VESRL	Vector Element Shift Right Logical	VRS-a	Shift and Rotate Instructions	Z
E73A	VESRA	Vector Element Shift Right Arithmetic	VRS-a	Shift and Rotate Instructions	Z
E73E	VSTM	Vector STore Multiple	VRS-a	Data Transfer Instructions	Z
E73F	VSTL	Vector STore with Length	VRS-b	Data Transfer Instructions	Z
E740		Get APCBE		VS1 Assist Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E740	VLEIB	Vector Load Element Immediate (8)	VRI-a	Data Transfer Instructions	Z
E741	VLEIH	Vector Load Element Immediate (16)	VRI-a	Data Transfer Instructions	Z
E742	VLEIG	Vector Load Element Immediate (64)	VRI-a	Data Transfer Instructions	Z
E743	VLEIF	Vector Load Element Immediate (32)	VRI-a	Data Transfer Instructions	Z
E744	VGBM	Vector Generate Byte Mask	VRI-a	Other Instructions	Z
E745	VREPI	Vector REPlicate Immediate	VRI-a	Data Transfer Instructions	Z
E746	VGM	Vector Generate Mask	VRI-b	Other Instructions	Z
E74A	VFTCI	Vector FP Test data Class Immediate	VRI-e	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E74D	VREP	Vector REPlicate	VRI-c	Data Transfer Instructions	Z
E750		Return APCBE		VS1 Assist Other Instructions	370
E750	VPOPCT	Vector POPulation CounT	VRR-a	Other Instructions	Z
E752	VCTZ	Vector CounT Trailing Zeros	VRR-a	Arithmetic Instructions	Z
E753	VCLZ	Vector CounT Leading Zeros	VRR-a	Arithmetic Instructions	Z
E756	VLR	Vector Load	VRR-a	Data Transfer Instructions	Z
E758		Find Gotten Queue Element		VS1 Assist Other Instructions	370
E75C	VISTR	Vector ISolate STRing	VRR-a	Other Instructions	Z
E75F	VSEG	Vector Sign Extend to Doubleword	VRR-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E760		Dequeue Top APCBE		VS1 Assist Other Instructions	370
E760	VMRL	Vector MeRge Low	VRR-c	Other Instructions	Z
E761	VMRH	Vector MeRge High	VRR-c	Other Instructions	Z
E762	VLVGP	Vector Load VR from GRS disjoint	VRR-f	Data Transfer Instructions	Z
E764	VSUM	Vector SUM across word	VRR-c	Arithmetic Instructions	Z
E765	VSUMG	Vector SUM across Doubleword	VRR-c	Arithmetic Instructions	Z
E766	VCKSM	Vector ChecKSuM	VRR-c	Arithmetic Instructions	Z
E767	VSUMQ	Vector SUM across Quadword	VRR-c	Arithmetic Instructions	Z
E768		SMF Storage Monitor		VS1 Assist Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E768	VN	Vector aNd	VRR-c	Arithmetic Instructions	Z
E769	VNC	Vector aNd with Complement	VRR-c	Arithmetic Instructions	Z
E76A	VO	Vector Or	VRR-c	Arithmetic Instructions	Z
E76B	VNO	Vector NOr	VRR-c	Arithmetic Instructions	Z
E76C	VNX	Vector Not eXclusive OR	VRR-c	Arithmetic Instructions	Z
E76D	VX	Vector eXclusive OR	VRR-c	Arithmetic Instructions	Z
E76E	VNN	Vector NaNd	VRR-c	Arithmetic Instructions	Z
E76F	VOC	Vector OR with Complement	VRR-c	Arithmetic Instructions	Z
E770		Enqueue RSPTE		VS1 Assist Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E770	VESLV	Vector Element Shift Left	VRR-c	Shift and Rotate Instructions	Z
E772	VERIM	Vector Element Rotate and Insert under Mask	VRI-d	Shift and Rotate Instructions	Z
E773	VERLLV	Vector Element Rotate Left Logical	VRR-c	Shift and Rotate Instructions	Z
E774	VSL	Vector Shift Left	VRR-c	Shift and Rotate Instructions	Z
E775	VSLB	Vector Shift Left by Byte	VRR-c	Shift and Rotate Instructions	Z
E777	VSLDB	Vector Shift Left DOUBLE by Byte	VRI-d	Shift and Rotate Instructions	Z
E778		GETMAIN PPA		VS1 Assist Other Instructions	370
E778	VESRLV	Vector Element Shift Right Logical	VRR-c	Shift and Rotate Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E77A	VESRAV	Vector Element Shift Right Arithmetic	VRR-c	Shift and Rotate Instructions	Z
E77C	VSRL	Vector Shift Right Logical	VRR-c	Shift and Rotate Instructions	Z
E77D	VSRLB	Vector Shift Right Logical by Byte	VRR-c	Shift and Rotate Instructions	Z
E77E	VSRA	Vector Shift Right Arithmetic	VRR-c	Shift and Rotate Instructions	Z
E77F	VSRAB	Vector Shift Right Arithmetic by Byte	VRR-c	Shift and Rotate Instructions	Z
E780		Enqueue RSPTE to Bottom		VS1 Assist Other Instructions	370
E780	VFEE	Vector Find Element Equal	VRR-b	Other Instructions	Z
E781	VFENE	Vector Find Element Not Equal	VRR-b	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E782	VFAE	Vector Find Any Element Equal	VRR-b	Other Instructions	Z
E784	VPDI	Vector Permute Doubleword Immediate	VRR-c	Other Instructions	Z
E785	VBPERM	Vector BIT PERMute	VRR-c	Shift and Rotate Instructions	Z
E786	VSLD	Vector Shift Left Double by bit	VRI-d	Shift and Rotate Instructions	Z
E787	VSRD	Vector Shift Right Double by bit	VRI-d	Shift and Rotate Instructions	Z
E788		GETMAIN PPA on Page Boundary		VS1 Assist Other Instructions	370
E78A	VSTRC	Vector String Range Compare	VRR-d	Logic Instructions	Z
E78B	VSTRS	Vector String Search	VRR-d	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E78C	VPERM	Vector PERMute	VRR-e	Shift and Rotate Instructions	Z
E78D	VSEL	Vector SELect	VRR-e	Other Instructions	Z
E78E	VFMS	Vector FP Multiply and Subtract	VRR-e	Arithmetic Instructions	Z
E78F	VFMA	Vector FP Multiply and Add	VRR-e	Arithmetic Instructions	Z
E790		Dequeue Specific RSPTE		VS1 Assist Other Instructions	370
E794	VPK	Vector PacK	VRR-c	Arithmetic Instructions	Z
E795	VPKLS	Vector PacK Logical Saturate	VRR-b	Arithmetic Instructions	Z
E797	VPKS	Vector PacK Saturate	VRR-b	Arithmetic Instructions	Z
E798		FREEMAIN PQA		VS1 Assist Other Instructions	370

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E79E	VFNMS	Vector FP Negative Multiply and Subtract	VRR-e	Arithmetic Instructions	Z
E79F	VFNMA	Vector FP Negative Multiply and Add	VRR-e	Arithmetic Instructions	Z
E7A0		Dequeue First RSPTE		VS1 Assist Other Instructions	370
E7A1	VMLH	Vector Multiply Logical High	VRR-c	Arithmetic Instructions	Z
E7A2	VML	Vector Multiply Low	VRR-c	Arithmetic Instructions	Z
E7A3	VMH	Vector Multiply High	VRR-c	Arithmetic Instructions	Z
E7A4	VMLE	Vector Multiply Logical Even	VRR-c	Arithmetic Instructions	Z
E7A5	VMLO	Vector Multiply Logical Odd	VRR-c	Arithmetic Instructions	Z
E7A6	VME	Vector Multiply EVen	VRR-c	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7A7	VMO	Vector Multiply Odd	VRR-c	Arithmetic Instructions	Z
E7A8		FREEMAIN in Partition		VS1 Assist Other Instructions	370
E7A9	VMALH	Vector Multiply AND Add Logical High	VRR-d	Arithmetic Instructions	Z
E7AA	VMAL	Vector Multiply AND Add Low	VRR-d	Arithmetic Instructions	Z
E7AB	VMAH	Vector Multiply AND Add High	VRR-d	Arithmetic Instructions	Z
E7AC	VMALE	Vector Multiply AND Add Logical Even	VRR-d	Arithmetic Instructions	Z
E7AD	VMALO	Vector Multiply AND Add Logical Odd	VRR-d	Arithmetic Instructions	Z
E7AE	VMAE	Vector Multiply AND Add Even	VRR-d	Arithmetic Instructions	Z
E7AF	VMAO	Vector Multiply AND Add Odd	VRR-d	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7B0		Invalidate Virtual Page		VS1 Assist Other Instructions	370
E7B4	VGFM	Vector Galois Field Multiply sum	VRR-c	Arithmetic Instructions	Z
E7B8		Save GETMAIN/FREEMAIN Status		VS1 Assist Other Instructions	370
E7B8	VMSL	Vector Multiply Sum Logical	VRR-d	Arithmetic Instructions	Z
E7B9	VACCC	Vector Add with Carry Compute Carry	VRR-d	Arithmetic Instructions	Z
E7BB	VAC	Vector Add with Carry	VRR-d	Arithmetic Instructions	Z
E7BC	VGFMA	Vector Galois Field Multiply sum and Accumulate	VRR-d	Arithmetic Instructions	Z
E7BD	VSBCBI	Vector Subtract with Borrow Compute Borrow Indication	VRR-d	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7BF	VSBI	Vector Subtract with Borrow Indication	VRR-d	Arithmetic Instructions	Z
E7C0		Short Term Unfix		VS1 Assist Other Instructions	370
E7C0	VCLFP	Vector FP Convert to Logical	VRR-a	Data Transfer Instructions	Z
E7C0	VCLGD	Vector FP Convert to Logical 64-bit	VRR-a	Data Transfer Instructions	Z
E7C1	VCFPL	Vector FP Convert from Logical	VRR-a	Data Transfer Instructions	Z
E7C1	VCDLG	Vector FP Convert from Logical 64-bit	VRR-a	Data Transfer Instructions	Z
E7C2	VCSFP	Vector FP Convert to Fixed	VRR-a	Data Transfer Instructions	Z
E7C2	VCGD	Vector FP Convert to Fixed 64-bit	VRR-a	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7C3	VCFPS	Vector FP Convert from Fixed	VRR-a	Data Transfer Instructions	Z
E7C3	VCDG	Vector FP Convert from Fixed 64-bit	VRR-a	Data Transfer Instructions	Z
E7C4	VFLL	Vector FP Load Lengthened	VRR-a	Data Transfer Instructions	Z
E7C5	VFLR	Vector FP Load Rounded	VRR-a	Data Transfer Instructions	Z
E7C7	VFI	Vector Load FP Integer	VRR-a	Data Transfer Instructions	Z
E7C8		Restore GETMAIN/FREEMAIN Status		VS1 Assist Other Instructions	370
E7CA	WFK	Vector FP Compare and Signal Scalar	VRR-a	Logic Instructions	Z
E7CB	WFC	Vector FP Compare Scalar	VRR-a	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7CC	VFPSO	Vector FP Perform Sign Operation	VRR-a	Arithmetic Instructions	Z
E7CE	VFSQ	Vector FP SQuare root	VRR-a	Arithmetic Instructions	Z
E7D4	VUPLL	Vector UnPack Logical Low	VRR-a	Arithmetic Instructions	Z
E7D5	VUPLH	Vector UnPack Logical High	VRR-a	Arithmetic Instructions	Z
E7D6	VUPL	Vector UnPack Low	VRR-a	Arithmetic Instructions	Z
E7D7	VUPH	Vector UnPack High	VRR-a	Arithmetic Instructions	Z
E7D8		GETMAIN PQA		VS1 Assist Other Instructions	370
E7D8	VTM	Vector Test under Mask	VRR-a	Logic Instructions	Z
E7D9	VECL	Vector Element Compare Logical	VRR-a	Logic Instructions	Z
E7DB	VEC	Vector Element Compare	VRR-a	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7DE	VLC	Vector Load Complement	VRR-a	Data Transfer Instructions	Z
E7DF	VLP	Vector Load Positive	VRR-a	Data Transfer Instructions	Z
E7E0		Page Measurement		VS1 Assist Other Instructions	370
E7E2	VFS	Vector FP Subtract	VRR-c	Arithmetic Instructions	Z
E7E3	VFA	Vector FP Add	VRR-c	Arithmetic Instructions	Z
E7E5	VFD	Vector FP Divide	VRR-c	Arithmetic Instructions	Z
E7E7	VFM	Vector FP Multiply	VRR-c	Arithmetic Instructions	Z
E7E8		Resume Group1 Suboperation		VS1 Assist Other Instructions	370
E7E8	VFCE	Vector FP Compare Equal	VRR-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7EA	VFCHE	Vector FP Compare High or Equal	VRR-c	Logic Instructions	Z
E7EB	VFCH	Vector FP Compare High	VRR-c	Logic Instructions	Z
E7EE	VFMIN	Vector FP Minimum	VRR-c	Logic Instructions	Z
E7EF	VFMAX	Vector FP Maximum	VRR-c	Logic Instructions	Z
E7F0		Short Term Fix		VS1 Assist Other Instructions	370
E7F0	VAVGL	Vector AVeraGe Logical	VRR-c	Arithmetic Instructions	Z
E7F1	VACC	Vector Add Compute Carry	VRR-c	Arithmetic Instructions	Z
E7F2	VAVG	Vector AVeraGe	VRR-c	Arithmetic Instructions	Z
E7F3	VA	Vector Add	VRR-c	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7F5	VSCBI	Vector Subtract Compute Borrow Indication	VRR-c	Arithmetic Instructions	Z
E7F7	VS	Vector Subtract	VRR-c	Arithmetic Instructions	Z
E7F8		Resume Group2 Suboperation		VS1 Assist Other Instructions	370
E7F8	VCEQ	Vector Compare EQual	VRR-b	Logic Instructions	Z
E7F9	VCHL	Vector Compare High Logical	VRR-b	Logic Instructions	Z
E7FB	VCH	Vector Compare High	VRR-b	Logic Instructions	Z
E7FC	VMNL	Vector Minimum Logical	VRR-c	Logic Instructions	Z
E7FD	VMXL	Vector Maximum Logical	VRR-c	Logic Instructions	Z
E7FE	VMN	Vector Minimum	VRR-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
E7FF	VMX	Vector Maximum	VRR-c	Logic Instructions	Z
E8	MVCIN	MoVe Characters Inverse	SS	Data Transfer Instructions	370
E9	PKA	Pack Ascii	SS	Data Transfer Instructions	390
EA	UNPKA	UnPacK Ascii	SS	Data Transfer Instructions	370
EA00	DIL		SS	Other Instructions	390
EA01	BDIL		SS	Other Instructions	390
EA04	ANUM		SS	Other Instructions	390
EA05	COMP		SS	Other Instructions	390
EA08	MCPU		SS	Other Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EA09	MIO		SS	Other Instructions	390
EA0C	BIFLAG		SS	Other Instructions	390
EA0D	MULDIV		SS	Other Instructions	390
EB04	LMG	Load Multiple Grande	RSY-a	Data Transfer Instructions	Z
EB0A	SRAG	Shift Right single Arith. Grande	RSY-a	Shift and Rotate Instructions	Z
EB0B	SLAG	Shift Left single Arith. Grande	RSY-a	Shift and Rotate Instructions	Z
EB0C	SRLG	Shift Right single Log. Grande	RSY-a	Shift and Rotate Instructions	Z
EB0D	SLLG	Shift Left single Log. Grande	RSY-a	Shift and Rotate Instructions	Z
EB0F	TRACG	TRACe Grande	RSY-a	Privileged Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EB14	CSY	Compare and Swap (32)	RSY-a	Logic Instructions	Z
EB1C	RLLG	Rotate Left single Log. Grande	RSY-a	Shift and Rotate Instructions	Z
EB1D	RLL	Rotate Left single Logical (32)	RSY-a	Shift and Rotate Instructions	Z
EB20	CLMH	Comp. Log. chars under Mask High	RSY-b	Logic Instructions	Z
EB21	CLMY	Comp. Log. chars under Mask Yonder	RSY-b	Logic Instructions	Z
EB23	CLT	Comp. Log. and Trap	RSY-b	Logic Instructions	390
EB23-2	CLTH	Comp. Log. and Trap on High	RSY-b	Logic Instructions	390
EB23-4	CLTL	Comp. Log. and Trap on Low	RSY-b	Logic Instructions	390
EB23-7	CLTNE	Comp. Log. and Trap on Not Equal	RSY-b	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EB23-8	CLTE	Comp. Log. and Trap on Equal	RSY-b	Logic Instructions	390
EB23-B	CLTNL	Comp. Log. and Trap on Not Low	RSY-b	Logic Instructions	390
EB23-D	CLTNH	Comp. Log. and Trap on Not High	RSY-b	Logic Instructions	390
EB24	STMG	Store Multiple Grande	RSY-a	Data Transfer Instructions	Z
EB25	STCTG	STore ConTrol (64)	RSY-a	Privileged Instructions	Z
EB26	STMH	STore Multiple High	RSY-a	Data Transfer Instructions	Z
EB2B	CLT	Comp. Log. and Trap (64)	RSY-b	Logic Instructions	390
EB2C	STCMH	STore Characters under Mask (High)	RSY-b	Data Transfer Instructions	Z
EB2D	STCMY	STore Characters under Mask (Low)	RSY-b	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EB2F	LCTLG	Load Control (64)	RSY-a	Privileged Instructions	Z
EB30	CSG	Compare and Swap (64)	RSY-a	Logic Instructions	Z
EB31	CDSY	Compare Double and Swap (32)	RSY-a	Logic Instructions	Z
EB3E	CDSG	Compare Double and Swap (64)	RSY-a	Logic Instructions	Z
EB44	BXHG	Branch on indeX High (64)	RSY-a	Branch Instructions	Z
EB45	BXLEG	Branch on indeX Low or Equal (64)	RSY-a	Branch Instructions	Z
EB4C	ECAG	Extract CPU Attribute (Extr. Cache Attribute)	RSY-a	Other Instructions	Z
EB51	TMY	Test under Mask	SIY	Logic Instructions	Z
EB52	MVIY	MoVe Immediate	SIY	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EB54	NIY	aNd Immediate	SIY	Data Transfer Instructions	Z
EB55	CLIY	Compare Logical Immediate	SIY	Logic Instructions	Z
EB56	OIY	Or Immediate	SIY	Data Transfer Instructions	Z
EB57	XIY	eXclusive or Immediate	SIY	Data Transfer Instructions	Z
EB6A	ASI	Add Immediate (8/32)	SIY	Arithmetic Instructions	Z
EB6E	ALSI	Add Logical with Signed Immediate (8/32)	SIY	Arithmetic Instructions	Z
EB7A	AGSI	Add Immediate (8/64)	SIY	Arithmetic Instructions	Z
EB7E	ALGSI	Add Logical with Signed Immediate (8/64)	SIY	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EB80	ICMH	Insert Characters under Mask High	RSY-b	Data Transfer Instructions	390
EB81	ICMY	Insert Characters under Mask	RSY-b	Data Transfer Instructions	390
EB8E	MVCLU	MoVe Character Long (Unicode)	RSY-a	Data Transfer Instructions	390
EB8F	CLCLU	Compare Logical Character Long (Unicode)	RSY-a	Logic Instructions	390
EB96	LMH	Load Multiple High	RSY-a	Data Transfer Instructions	390
EB98	LMY	Load Multiple Yonder	RSY-a	Data Transfer Instructions	390
EB9A	LAMY	Load Access Multiple	RSY-a	Data Transfer Instructions	Z
EBC0	TP	Test Packed Decimal	RSL-a	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EBDC	SRAK	Shift Right sing. Arith. Keeping Source data	RSY-a	Data Transfer Instructions	390
EBDD	SLAK	Shift Left sing. Arith. Keeping Source data	RSY-a	Data Transfer Instructions	390
EBDE	SRLK	Shift Right sing. Logical Keeping Source data	RSY-a	Data Transfer Instructions	390
EBDF	SRLK	Shift Left sing. Logical Keeping Source data	RSY-a	Data Transfer Instructions	390
EBE0	LOCFH	Load High on Condition (32)	RSY-b	Other Instructions	Z
EBE1	STOCFH	STore High on Condition	RSY-b	Other Instructions	Z
EBE2	LOCG	LOad on Condition Grande	RSY-b	Data Transfer Instructions	Z
EBE3	STOCG	STore on Condition (64)	RSY-b	Data Transfer Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EBE4	LANG	Load and aNd (64)	RSY-a	Arithmetic Instructions	Z
EBE6	LAOG	Load and OR (64)	RSY-a	Arithmetic Instructions	Z
EBE7	LAXG	Load and eXclusive or (64)	RSY-a	Arithmetic Instructions	Z
EBE8	LAAG	Load and Add (64)	RSY-a	Arithmetic Instructions	Z
EBEA	LAALG	Load and Add Logical (64)	RSY-a	Arithmetic Instructions	Z
EBF2	LOC	Load on Condition (32)	RSY-b	Data Transfer Instructions	Z
EBF3	STOC	STore on Condition (32)	RSY-b	Data Transfer Instructions	Z
EBF4	LAN	Load and aNd (32)	RSY-a	Arithmetic Instructions	Z
EBF6	LAO	Load and OR (32)	RSY-a	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EBF7	LAX	Load and eXclusive or (32)	RSY-a	Arithmetic Instructions	Z
EBF8	LAA	Load and Add (32)	RSY-a	Arithmetic Instructions	Z
EBFA	LAAL	Load and Add Logical (32)	RSY-a	Arithmetic Instructions	Z
EC42	LOCHI	Load Halfword Immediate on Condition (32<16)	RIE-g	Data Transfer Instructions	Z
EC44	BRXHG	Branch Relative on indeX High	RIE-e	Branch Instructions	Z
EC45	BRXLG	Branch Relative on indeX Low	RIE-e	Branch Instructions	Z
EC46	LOCGHI	Load Halfword Immediate on Condition (64<16)	RIE-g	Data Transfer Instructions	Z
EC4E	LOCHHI	Load Halfword High Immediate on Condition (32<16)	RIE-g	Data Transfer Instructions	Z
EC51	RISBLG	Rotate then Insert Selected Bits Low (64)	RIE-f	Shift and Rotate Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC54	RNSBG	Rotate then aNd Selected Bits	RIE-f	Shift and Rotate Instructions	Z
EC55	RISBG	Rotate then Insert Selected Bits	RIE-f	Shift and Rotate Instructions	Z
EC56	ROSBG	Rotate then Or Selected Bits	RIE-f	Shift and Rotate Instructions	Z
EC57	RXSBG	Rotate then eXclusive OR Selected Bits	RIE-f	Shift and Rotate Instructions	Z
EC59	RISBGN	Rotate then Insert Selected Bits (64)	RIE-f	Other Instructions	Z
EC5D	RISBHG	Rotate then Insert Selected Bits High (64)	RIE-f	Other Instructions	Z
EC64	CGRJ	Compare and Branch Relative (64)	RIE-b	Logic Instructions	Z
EC64-2	CGRJH	Compare and Branch Relative on High (64)	RIE-b	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC64-4	CGRJL	Compare and Branch Relative on Low (64)	RIE-b	Logic Instructions	Z
EC64-7	CGRJNE	Compare and Branch Relative on Not Equal (64)	RIE-b	Logic Instructions	Z
EC64-8	CGRJE	Compare and Branch Relative on Equal (64)	RIE-b	Logic Instructions	Z
EC64-A	CGRJNL	Compare and Branch Relative on Not Low (64)	RIE-b	Logic Instructions	Z
EC64-C	CGRJNH	Compare and Branch Relative on Not High (64)	RIE-b	Logic Instructions	Z
EC65	CLGRJ	Compare Logical and Branch Relative (64)	RIE-b	Logic Instructions	Z
EC65-2	CLGRJH	Compare Logical and Branch Relative on High (64)	RIE-b	Logic Instructions	Z
EC65-4	CLGRJL	Compare Logical and Branch	RIE-b	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
		Relative on Low (64)			
EC65-7	CLGRJNE	Compare Logical and Branch Relative on Not Equal (64)	RIE-b	Logic Instructions	Z
EC65-8	CLGRJE	Compare Logical and Branch Relative on Equal (64)	RIE-b	Logic Instructions	Z
EC65-A	CLGRJNL	Compare Logical and Branch Relative on Not Low (64)	RIE-b	Logic Instructions	Z
EC65-C	CLGRJNH	Compare Logical and Branch Relative on Not High (64)	RIE-b	Logic Instructions	Z
EC70	CGIT	Compare Immediate and Trap (16/64)	RIE-a	Logic Instructions	Z
EC70-2	CGITH	Compare Immediate and Trap on High (16/64)	RIE-a	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC70-4	CGITL	Compare Immediate and Trap on Low (16/64)	RIE-a	Logic Instructions	Z
EC70-7	CGITNE	Compare Immediate and Trap on Not Equal (16/64)	RIE-a	Logic Instructions	Z
EC70-8	CGITE	Compare Immediate and Trap on Equal (16/64)	RIE-a	Logic Instructions	Z
EC70-A	CGITNL	Compare Immediate and Trap on Not Low (16/64)	RIE-a	Logic Instructions	Z
EC70-C	CGITNH	Compare Immediate and Trap on Not High (16/64)	RIE-a	Logic Instructions	Z
EC71	CLGIT	Compare Logical Immediate and Trap (16/64)	RIE-a	Logic Instructions	Z
EC71-2	CLGITH	Compare Logical Immediate and Trap on High (16/64)	RIE-a	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC71-4	CLGITL	Compare Logical Immediate and Trap on Low (16/64)	RIE-a	Logic Instructions	Z
EC71-7	CLGITNE	Compare Logical Immediate and Trap on Not Equal (16/64)	RIE-a	Logic Instructions	Z
EC71-8	CLGITE	Compare Logical Immediate and Trap on Equal (16/64)	RIE-a	Logic Instructions	Z
EC71-A	CLGITNL	Compare Logical Immediate and Trap on Not Low (16/64)	RIE-a	Logic Instructions	Z
EC71-C	CLGITNH	Compare Logical Immediate and Trap on Not High (16/64)	RIE-a	Logic Instructions	Z
EC72	CIT	Compare Immediate and Trap (16/32)	RIE-a	Logic Instructions	Z
EC72-2	CITH	Compare Immediate and Trap on High (16/32)	RIE-a	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC72-4	CITL	Compare Immediate and Trap on Low (16/32)	RIE-a	Logic Instructions	Z
EC72-7	CITNE	Compare Immediate and Trap on Not Equal (16/32)	RIE-a	Logic Instructions	Z
EC72-8	CITE	Compare Immediate and Trap on Equal (16/32)	RIE-a	Logic Instructions	Z
EC72-A	CITNL	Compare Immediate and Trap on Not Low (16/32)	RIE-a	Logic Instructions	Z
EC72-C	CITNH	Compare Immediate and Trap on Not High (16/32)	RIE-a	Logic Instructions	Z
EC73	CLFIT	Compare Logical Immediate and Trap (16/32)	RIE-a	Logic Instructions	Z
EC73-2	CLFITH	Compare Logical Immediate and Trap on High (16/32)	RIE-a	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC73-4	CLFITL	Compare Logical Immediate and Trap on Low (16/32)	RIE-a	Logic Instructions	Z
EC73-7	CLFITNE	Compare Logical Immediate and Trap on Not Equal (16/32)	RIE-a	Logic Instructions	Z
EC73-8	CLFITE	Compare Logical Immediate and Trap on Equal (16/32)	RIE-a	Logic Instructions	Z
EC73-A	CLFITNL	Compare Logical Immediate and Trap on Not Low (16/32)	RIE-a	Logic Instructions	Z
EC73-C	CLFITNH	Compare Logical Immediate and Trap on Not High (16/32)	RIE-a	Logic Instructions	Z
EC76	CRJ	Compare and Branch Relative (32)	RIE-b	Logic Instructions	Z
EC76-2	CRJH	Compare and Branch Relative on High (32)	RIE-b	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC76-4	CRJL	Compare and Branch Relative on Low (32)	RIE-b	Logic Instructions	Z
EC76-7	CRJNE	Compare and Branch Relative on Not Equal (32)	RIE-b	Logic Instructions	Z
EC76-8	CRJE	Compare and Branch Relative on Equal (32)	RIE-b	Logic Instructions	Z
EC76-A	CRJNL	Compare and Branch Relative on Not Low (32)	RIE-b	Logic Instructions	Z
EC76-C	CRJNH	Compare and Branch Relative on Not High (32)	RIE-b	Logic Instructions	Z
EC77	CLRJ	Compare Logical and Branch Relative (32)	RIE-b	Logic Instructions	Z
EC77-2	CLRJH	Compare Logical and Branch Relative on High (32)	RIE-b	Logic Instructions	Z
EC77-4	CLRJL	Compare Logical and Branch	RIE-b	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
		Relative on Low (32)			
EC77-7	CLRJNE	Compare Logical and Branch Relative on Not Equal (32)	RIE-b	Logic Instructions	Z
EC77-8	CLRJE	Compare Logical and Branch Relative on Equal (32)	RIE-b	Logic Instructions	Z
EC77-A	CLRJNL	Compare Logical and Branch Relative on Not Low (32)	RIE-b	Logic Instructions	Z
EC77-C	CLRJNH	Compare Logical and Branch Relative on Not High (32)	RIE-b	Logic Instructions	Z
EC7C	CGIJ	Compare Immediate and Branch Relative (8/64)	RIE-c	Logic Instructions	Z
EC7C-2	CGIJH	Compare Immediate and Branch Relative (a High)	RIE-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC7C-4	CGIJL	Compare Immediate and Branch Relative (a Low)	RIE-c	Logic Instructions	Z
EC7C-7	CGIJNE	Compare Immediate and Branch Relative Not Equal	RIE-c	Logic Instructions	Z
EC7C-8	CGIJE	Compare Immediate and Branch Relative (a Equal b)	RIE-c	Logic Instructions	Z
EC7C-A	CGIJNL	Compare Immediate and Branch Relative (a Not Low)	RIE-c	Logic Instructions	Z
EC7C-C	CGIJNH	Compare Immediate and Branch Relative Not High	RIE-c	Logic Instructions	Z
EC7D	CLGIJ	Compare Log.Immed. and Branch Relative (8/64)	RIE-c	Logic Instructions	Z
EC7D-2	CLGIJH	Compare Log.Immed. and	RIE-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
		Branch Relative (a High)			
EC7D-4	CLGIJL	Compare Log.Immed. and Branch Relative (a Low)	RIE-c	Logic Instructions	Z
EC7D-7	CLGIJNE	Compare Log.Immed. and Branch Relative Not Equal	RIE-c	Logic Instructions	Z
EC7D-8	CLGIJE	Compare Log.Immed. and Branch Relative (a Equal b)	RIE-c	Logic Instructions	Z
EC7D-A	CLGIJNL	Compare Log.Immed. and Branch Relative (a Not Low)	RIE-c	Logic Instructions	Z
EC7D-C	CLGIJNH	Compare Log.Immed. and Branch Relative Not High	RIE-c	Logic Instructions	Z
EC7E	CIJ	Compare Immediate and Branch Relative (8/32)	RIE-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EC7E-2	CIJH	Compare Immediate and Branch Relative (a High)	RIE-c	Logic Instructions	Z
EC7E-4	CIJL	Compare Immediate and Branch Relative (a Low)	RIE-c	Logic Instructions	Z
EC7E-7	CIJNE	Compare Immediate and Branch Relative Not Equal	RIE-c	Logic Instructions	Z
EC7E-8	CIJE	Compare Immediate and Branch Relative (a Equal b)	RIE-c	Logic Instructions	Z
EC7E-A	CIJNL	Compare Immediate and Branch Relative (a Not Low)	RIE-c	Logic Instructions	Z
EC7E-C	CIJNH	Compare Immediate and Branch Relative Not High	RIE-c	Logic Instructions	Z
EC7F	CLIJ	Compare Log.Immed. and	RIE-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
		Branch Relative (8/32)			
EC7F-2	CLIJH	Compare Log.Immed. and Branch Relative (a High)	RIE-c	Logic Instructions	Z
EC7F-4	CLIJL	Compare Log.Immed. and Branch Relative (a Low)	RIE-c	Logic Instructions	Z
EC7F-7	CLIJNE	Compare Log.Immed. and Branch Relative Not Equal	RIE-c	Logic Instructions	Z
EC7F-8	CLIJE	Compare Log.Immed. and Branch Relative (a Equal b)	RIE-c	Logic Instructions	Z
EC7F-A	CLIJNL	Compare Log.Immed. and Branch Relative (a Not Low)	RIE-c	Logic Instructions	Z
EC7F-C	CLIJNH	Compare Log.Immed. and Branch Relative Not High	RIE-c	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ECD8	AHIK	Add Immediate (32<16)	RIE-d	Other Instructions	Z
ECD9	AGHIK	Add Immediate (64<16)	RIE-d	Other Instructions	Z
ECDA	ALHSIK	Add Logical with Signed Immediate (32<16)	RIE-d	Other Instructions	Z
ECDB	ALGHSIK	Add Logical with Signed Immediate (64<16)	RIE-d	Other Instructions	Z
ECE4	CGRB	Compare and Branch (64)	RRS	Logic Instructions	390
ECE4-2	CGRBH	Compare and Branch on High (64)	RRS	Logic Instructions	390
ECE4-4	CGRBL	Compare and Branch on Low (64)	RRS	Logic Instructions	390
ECE4-7	CGRBNE	Compare and Branch on Not Equal (64)	RRS	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ECE4-8	CGRBE	Compare and Branch on Equal (64)	RRS	Logic Instructions	390
ECE4-A	CGRBNL	Compare and Branch on Not Low (64)	RRS	Logic Instructions	390
ECE4-C	CGRBNH	Compare and Branch on Not High (64)	RRS	Logic Instructions	390
ECE5	CLGRB	Compare Logical and Branch (64)	RRS	Logic Instructions	390
ECE5-2	CLGRBH	Compare Logical and Branch on High (64)	RRS	Logic Instructions	390
ECE5-4	CLGRBL	Compare Logical and Branch on Low (64)	RRS	Logic Instructions	390
ECE5-7	CLGRBNE	Compare Logical and Branch on Not Equal (64)	RRS	Logic Instructions	390
ECE5-8	CLGRBE	Compare Logical and Branch on Equal (64)	RRS	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ECE5-A	CLGRBNL	Compare Logical and Branch on Not Low (64)	RRS	Logic Instructions	390
ECE5-C	CLGRBNH	Compare Logical and Branch on Not High (64)	RRS	Logic Instructions	390
ECF6	CRB	Compare and Branch (32)	RRS	Logic Instructions	390
ECF6-2	CRBH	Compare and Branch (32) on High	RRS	Logic Instructions	390
ECF6-4	CRBL	Compare and Branch (32) on Low	RRS	Logic Instructions	390
ECF6-7	CRBNE	Compare and Branch (32) on Not Equal	RRS	Logic Instructions	390
ECF6-8	CRBE	Compare and Branch (32) on Equal	RRS	Logic Instructions	390
ECF6-A	CRBNL	Compare and Branch (32) on Not Low	RRS	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ECF6-E	CRBNH	Compare and Branch (32) on Not High	RRS	Logic Instructions	390
ECF7	CLRB	Compare Logical and Branch (32)	RRS	Logic Instructions	390
ECF7-2	CLRBH	Compare Logical and Branch (32) on High	RRS	Logic Instructions	390
ECF7-4	CLRBL	Compare Logical and Branch (32) on Low	RRS	Logic Instructions	390
ECF7-7	CLRBNE	Compare Logical and Branch (32) on Not Equal	RRS	Logic Instructions	390
ECF7-8	CLRBE	Compare Logical and Branch (32) on Equal	RRS	Logic Instructions	390
ECF7-A	CLRBNL	Compare Logical and Branch (32) on Not Low	RRS	Logic Instructions	390
ECF7-C	CLRBNH	Compare Logical and Branch (32) on Not High	RRS	Logic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ECFC	CGIB	Compare Immediate and Branch (8/64)	RIS	Logic Instructions	Z
ECFC-2	CGIBH	Compare Immediate and Branch (a High)	RIS	Logic Instructions	Z
ECFC-4	CGIBL	Compare Immediate and Branch (a Low)	RIS	Logic Instructions	Z
ECFC-7	CGIBNE	Compare Immediate and Branch Not Equal	RIS	Logic Instructions	Z
ECFC-8	CGIBE	Compare Immediate and Branch (a Equal b)	RIS	Logic Instructions	Z
ECFC-A	CGIBNL	Compare Immediate and Branch (a Not Low)	RIS	Logic Instructions	Z
ECFC-C	CGIBNH	Compare Immediate and Branch Not High	RIS	Logic Instructions	Z
ECFE	CIB	Compare Immediate and Branch (8/32)	RIS	Logic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ECFE-2	CIBH	Compare Immediate and Branch (a High)	RIS	Logic Instructions	Z
ECFE-4	CIBL	Compare Immediate and Branch (a Low)	RIS	Logic Instructions	Z
ECFE-7	CIBNE	Compare Immediate and Branch Not Equal	RIS	Logic Instructions	Z
ECFE-8	CIBE	Compare Immediate and Branch (a Equal b)	RIS	Logic Instructions	Z
ECFE-A	CIBNL	Compare Immediate and Branch (a Not Low)	RIS	Logic Instructions	Z
ECFE-C	CIBNH	Compare Immediate and Branch Not High	RIS	Logic Instructions	Z
ED04	LDEB	Load Lengthened (Short/Long)	RXE	Data Transfer Instructions	390
ED05	LXDB	Load Lengthened (Long/Extended)	RXE	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ED06	LXEB	Load Lengthened (Short/Extended)	RXE	Data Transfer Instructions	390
ED07	MXDB	Multiply (Long/Extended)	RXE	Arithmetic Instructions	390
ED08	KEB	Compare and Sign (Short)	RXE	Logic Instructions	390
ED09	CEB	Compare (Short)	RXE	Logic Instructions	390
ED0A	AEB	Add (Short)	RXE	Arithmetic Instructions	390
ED0B	SEB	Subtract (Short)	RXE	Arithmetic Instructions	390
ED0C	MDEB	Multiply (Short)	RXE	Arithmetic Instructions	390
ED0D	DEB	Divide (Short)	RXE	Arithmetic Instructions	390
ED0E	MAEB	Multiply and Add (Short)	RXF	Arithmetic Instructions	390
ED0F	MSEB	Multiply and Subtract (Short)	RXF	Arithmetic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ED10	TCEB	Test Data Class (Short)	RXE	Logic Instructions	390
ED11	TCDB	Test Data Class (Long)	RXE	Logic Instructions	390
ED12	TCXB	Test Data Class (Extended)	RXE	Logic Instructions	390
ED14	SQEB	Square Root (Short BFP)	RXE	Arithmetic Instructions	390
ED15	SQDB	Square Root (Long BFP)	RXE	Arithmetic Instructions	390
ED17	MEEB	Multiply	RXE	Arithmetic Instructions	390
ED18	KDB	Compare and Sign (Long)	RXE	Logic Instructions	390
ED19	CDB	Compare (Long)	RXE	Logic Instructions	390
ED1A	ADB	Add (Long)	RXE	Arithmetic Instructions	390
ED1B	SDB	Subtract (Long)	RXE	Arithmetic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ED1C	MDB	Multiply (Long)	RXE	Arithmetic Instructions	390
ED1D	DDB	Divide (Long)	RXE	Arithmetic Instructions	390
ED1E	MADB	Multiply and Add (Long)	RXF	Arithmetic Instructions	390
ED1F	MSDB	Multiply and Subtract (Long)	RXF	Arithmetic Instructions	390
ED24	LDE	Load Lengthened (Short/Long)	RXE	Arithmetic Instructions	390
ED25	LXD	Load Lengthened (Long/Extended)	RXE	Arithmetic Instructions	390
ED26	LXE	Load Lengthened (Short/Extended)	RXE	Arithmetic Instructions	390
ED2E	MAE	Multiply and Add (Short)	RXF	Arithmetic Instructions	390
ED2F	MSE	Multiply and Subtract (Short)	RXF	Arithmetic Instructions	390
ED34	SQE	Square Root (Short)	RXE	Arithmetic Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ED35	SQD	Square Root (Long)	RXE	Arithmetic Instructions	390
ED37	MEE	Multiply (Short*Short to Short)	RXE	Arithmetic Instructions	390
ED38	MAYL	Multiply and Add Unnormalized (Long>Ext. Low)	RXF	Arithmetic Instructions	Z
ED39	MYL	Multiply Unnormalized (Long>Ext. Low)	RXF	Arithmetic Instructions	Z
ED3A	MAY	Multiply and Add Unnormalized (Long>Extended)	RXF	Arithmetic Instructions	Z
ED3B	MY	Multiply Unnormalized (Long>Extended)	RXF	Arithmetic Instructions	Z
ED3C	MAYH	Multiply and Add Unnormalized (Long>Ext. High)	RXF	Arithmetic Instructions	Z
ED3D	MYH	Multiply Unnormalized (Long>Ext. High)	RXF	Arithmetic Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ED3E	MAD	Multiply and Add (Long)	RXF	Arithmetic Instructions	390
ED3F	MSD	Multiply and Subtract (Long)	RXF	Arithmetic Instructions	390
ED40	SLDT	Shift Significand Left (Long)	RXF	Shift and Rotate Instructions	390
ED41	SRDT	Shift Significand Right (Long)	RXF	Shift and Rotate Instructions	390
ED48	SLXT	Shift Significand Left (Extended)	RXF	Shift and Rotate Instructions	390
ED49	SRXT	Shift Significand Right (Extended)	RXF	Shift and Rotate Instructions	390
ED50	TDCET	Test Data Class (short DFP)	RXE	Other Instructions	Z
ED51	TDGET	Test Data Group (short DFP)	RXE	Other Instructions	Z
ED54	TDCDT	Test Data Class (long DFP)	RXE	Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
ED55	TDGDT	Test Data Group (long DFP)	RXE	Other Instructions	Z
ED58	TDCXT	Test Data Class (extended DFP)	RXE	Other Instructions	Z
ED59	TDGXT	Test Data Group (extended DFP)	RXE	Other Instructions	Z
ED64	LEY	Load	RXY-a	Data Transfer Instructions	390
ED65	LDY	Load Double	RXY-a	Data Transfer Instructions	390
ED66	STEY	Store	RXY-a	Data Transfer Instructions	390
ED67	STDY	Store Double	RXY-a	Data Transfer Instructions	390
EDA8	CZDT	Convert to Zoned (Long/Zoned)	RSL-b	Other Instructions	390
EDA9	CZXT	Convert to Zoned (Extended/Zoned)	RSL-b	Other Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
EDAA	CDZT	Convert from Zoned (Zoned/Long)	RSL-b	Other Instructions	390
EDAB	CXZT	Convert from Zoned (Zoned/Extended)	RSL-b	Other Instructions	390
EDAC	CPDT	Convert to PACKED (from long DFP)	RSL-b	Other Instructions	Z
EDAD	CPXT	Convert to PACKED (from extended DFP)	RSL-b	Other Instructions	Z
EDAE	CDPT	Convert from PACKED (to long DFP)	RSL-b	Other Instructions	Z
EDAF	CXPT	Convert from PACKED (to extended DFP)	RSL-b	Other Instructions	Z
EE	PLO	Perform Locked Operation	SS-e	Data Transfer Instructions	390
EF	LMD	Load Multiple Disjoint	SS-e	Data Transfer Instructions	390

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
F0	SRP	Shift and Round Packed	SS-c	Shift and Rotate Instructions	360
F1	MVO	Move with Offset	SS-b	Data Transfer Instructions	360
F2	PACK	PACK	SS-b	Arithmetic Instructions	360
F3	UNPK	UNPacK	SS-b	Arithmetic Instructions	360
F8	ZAP	Zero and Add Packed	SS-b	Arithmetic Instructions	360
F9	CP	Compare Packed	SS-b	Logic Instructions	360
FA	AP	Add Packed	SS-b	Arithmetic Instructions	360
FB	SP	Subtract Packed	SS-b	Arithmetic Instructions	360
FC	MP	Multiply Packed	SS-b	Arithmetic Instructions	360

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
FD	DP	Divide Packed	SS-b	Arithmetic Instructions	360
	LBEAR			Other Instructions	Z
	LFI			Other Instructions	Z
	LLGFI			Other Instructions	Z
	LPSWEY			Other Instructions	Z
	NNPA			Other Instructions	Z
	QPACI			Other Instructions	Z
	RDP			Other Instructions	Z
	SLLHH			Other Instructions	Z
	SLLHL			Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
	SLLLH			Other Instructions	Z
	SRLHH			Other Instructions	Z
	SRLHL			Other Instructions	Z
	SRLLH			Other Instructions	Z
	STBEAR			Other Instructions	Z
	VCFN			Other Instructions	Z
	VCLFNH			Other Instructions	Z
	VCLFNL			Other Instructions	Z
	VCLZDP			Other Instructions	Z
	VCNF			Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
	VCRNF			Other Instructions	Z
	VCSPH			Other Instructions	Z
	VPKZR			Other Instructions	Z
	VSCHDP			Other Instructions	Z
	VSCHP			Other Instructions	Z
	VSCHSP			Other Instructions	Z
	VSCHXP			Other Instructions	Z
	VSCSHP			Other Instructions	Z
	VSRPR			Other Instructions	Z
	VUPKZH			Other Instructions	Z

Opcode (Hex)	Mnemonic	Description	Instruction Format	Instruction Class	Instruction Set Architecture
	VUPKZL			Other Instructions	Z