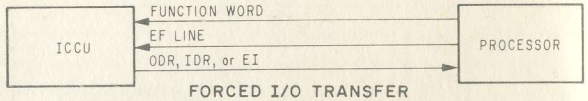
DATA FORMAT (CONT)

494 FORMAT

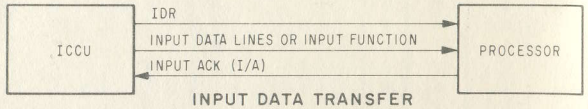
WORD	A	B	C BYTE 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
29	X*	2	0			6				4				2			
28	X	3	1			7				5				3			
27	X	4	2				0			6				4			
26	X	5	3				1			7				5			
25	X	6	4				2				0			6			
24	X	7	5				3				1			7			
23	X	2	6				4				2				0		
22	0	3	7				5				3				1		
21	1	4		0			6				4				2		
20	2	5		1			7				5				3		
19	3	6		2				0			6				4		
18	4	7		3				1			7				5		
17	5	2		4				2				0			6		
16	6	3		5				3				1			7		
15	7	4		6				4				2				0	
14	X	5		7				5				3				1	
13	X	6			0			6				4				2	
12	X	7			1			7				5				3	
11	X	2			2				0			6				4	
10	X	3			3				1			7				5	
09	X	4			4				2				0			6	
08	X	5			5				3				1			7	
07	0**	6			6				4				2				0
06	1	7			7				5				3				1
05	2	2				0			6				4				2
04	3	3				1			7				5				3
03	4	4				2				0			6				4
02	5	5				3				1			7				5
01	6	6				4				2				0			6
00	7	7				5				3				1			7

*Most significant byte
**Least significant byte

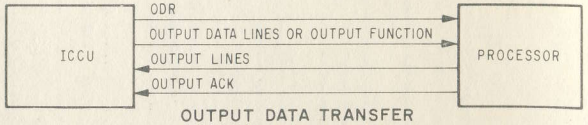
INPUT-OUTPUT TRANSFERS



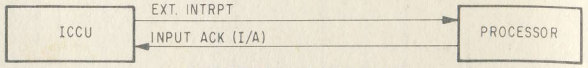
FORCED I/O TRANSFER



INPUT DATA TRANSFER



OUTPUT DATA TRANSFER



EXTERNAL INTERRUPT

MAINTENANCE PANEL SWITCHES AND INDICATORS

SWITCHES	DESCRIPTION
ODBØ—ODB7	Enabled as inputs to ICCU slave-output data register when ICCU is OFF-LINE from slave
S OFF-LINE	Places ICCU OFF-LINE to 9000 system
SINGL	Enables data to be transferred from ICCU (one byte at a time) when start switch is actuated. Operable with 9000 system when ICCU is ON-LINE or OFF-LINE
STOP	Terminates data transfers when start switch is actuated. Stop switch is active only when ICCU is OFF-LINE to 9000 system
M OFF-LINE	Places ICCU OFF-LINE to master computer system
COMM GATE	Transfers data set up in switches ODBØ—ODB7 to slave command register and data format register
CLEAR	"System Clear Signal" is duplicated resetting ICCU. Data registers are not cleared by clear switch
DISP SEL	Controls signals being displayed on panel indicators
START	Used with single and stop switches Single — Transfers one byte of data Stop — Terminates data transfers

INDICATORS	DESCRIPTION
WDRO—WDR7	ICCU output information consisting of master to slave data bytes, sense bytes, or status byte. DISP SEL switch must be down to observe data.
WACT	Lit when CONTROL ACTIVE FF is set.
XSTR	Lit when STATUS REQ. FF is set.
WNEED	Lit when DATA REQ. FF is set.
DACKF	Pulse trap. Lit by DATA ACK. Pulse from slave.
SHFF	Pulse trap. Lit when SHIFT CONTROL FF sets.
SHEP	Pulse trap. Lit by SHIFT END pulse.
CLBYK	Pulse trap. Lit by CLEAR DATA BYTE COUNTER signal.
18CMAX	Lit when byte counter contains byte counts 2, 4, 6, 9, and 12. Byte count 8 turn on indicator during a master-to-slave data XFR.
PULSE CATCH	Lit when indicator assy test FF (279,280) is set.

UNIVAC® 9200/9300

INTER-COMPUTER CONTROL UNIT
FEATURE 1095-00,-01,-02

maintenance card

MH2300 6/69

SLAVE COMMAND FORMAT (XF CODES)

BIT POSITION 0 1 2 3 4 5 6 7	DESCRIPTION
X X 0 0 0 0 0 0	Test I/O (Status to slave)
X X 0 1 0 0 0 0	Set inhibit status (Bit 6 of sense byte)
X X 1 0 0 0 0 0	Reset inhibit status
X* X* X X 0 1 0 0	Sense (4 Bytes of Sense data to slave)
D* D* D D D D 1 0	Input (Data to slave)
D* D* D D D D 0 1	Output (Data from slave)
D* D* D D D D 1 1	Set external interrupt request

*When Master is Off Line, These Bits Equal Bits 0 and 1 of Master EF Word

SLAVE STATUS BYTE

BIT	0	1	2	3	4	5	6	7
DESCRIPTION	Attention	Status Modifier	Not Used	Busy	Channel End	Device End	Unit Check	Unit Exception
	Master Interrupt	Used in CU Busy Seq. only		CU Busy	Occurs with Device End	Data Xfr. Term. or Cont. Comm Accepted	Set with Bits of SB1	Master Termination

SENSE BYTE 1 FORMAT

BIT	DESIGNATION	INTERPRETATION
0	Command Reject	Invalid Function Issued
1	Not Used	Xmitted as Ø
2	Bus Out Check	Parity Error on Bus Out from Slave Channel
3	Not Used	Xmitted as Ø
4	Not Used	Xmitted as Ø
5	Not Used	Xmitted as Ø
6	Inhibit Status In FF	Inhibit Status In FF Set
7	Not Used	Xmitted as Ø

SENSE BYTE 2 FORMAT
(FROM MASTER EF WORD)

9200/9300 BIT POSITION	EF WORD BIT POSITION	DESCRIPTION
0	15	Programmer's Sense Information (Not Interpreted by ICCU)
1	14	
2	13	
3	12	
4	11	
5	10	
6	9	
7	8	

SENSE BYTE 3 FORMAT
(FROM MASTER EF WORD)

9200/9300 BIT POSITION	EF WORD BIT POSITION	DESCRIPTION
0	7	Programmer's Sense Information (Not Interpreted by ICCU) (Detail Field)
1	6	
2	5	
3	4	
4	3	Data Format Selection (F Field)
5	2	
6	1	Control Field (C Field)
7	0	

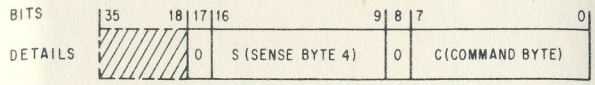
SENSE BYTE 4 FORMAT

BIT	DESIGNATION	INTERPRETATION
0	Selective Reset	Terminated by Slave (Error Det.)
1*	Master Termination	Operation Terminated by Master
2	Not Used	Xmitted as Ø
3*	Bus Parity Error	Parity Error Detected on Slave Output Bus
4**	Format Register FF 2	Bit 3 (Of Last Master EF Word)
5**	Format Register FF 1	Bit 2
6	Master Function Register FF 2	Bit 1
7	Master Function Register FF 1	Bit 0

*Bit always Ø to a sense command.

**When master is Off-Line, bit 4 is same as bit Ø of slave sense command; bit 5 is same as bit 1 of slave sense command.

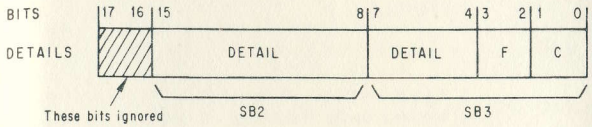
MASTER EXTERNAL INTERRUPT STATUS WORD



C = Command Byte from slave when slave issued first command other than sense or test I/O. On termination of data transfer, C is all zeros.

S = Sense Byte 4 (Bit Ø, SB1 = Bit 16)
Bits 17 and on (larger interfaces) are zeros.

MASTER COMMAND FORMAT (EF WORD)



C DETAILS

SLAVE BITS		MASTER BITS		
0	1	1	0	
1	0	0	1	Input (S ⟶ M)
0	1	1	0	Output (M ⟶ S)
0	0	0	0	Set attn. – Int. Slave
1	1	1	1	No data Xfer(Invalid)

F DETAILS

SLAVE BITS		MASTER BITS		
2	3	3	2	
0	0	0	0	Format A
1	0	0	1	Format B
X	1	1	X	Format C

Note:
Slave must issue a sense command to retrieve SB2 and SB3 following an Attention Interrupt.

PROGRAM COUNTER

COUNT	FUNCTION
PC0	ICCU Not Active
PC1	Command Sequencing (Matching)
PC2	Data Transfer
PC3	Ending Sequence

ICCU FEATURES

FEATURE NUMBER	MASTER COMPUTER SYSTEM
F1095-00	418-III
F1095-01	494
F1095-02	1108

DATA FORMAT

1108 FORMAT

WORD	A	B	C BYTE 1	2	3	4	5	6	7	8	9
35	X*	2	0				4				
34	0	3	1				5				
33	1	4	2				6				
32	2	5	3				7				
31	3	6	4					0			
30	4	7	5					1			
29	5	2	6					2			
28	6	3	7					3			
27	7	4		0				4			
26	X	5		1				5			
25	0	6		2				6			
24	1	7		3				7			
23	2	2		4					0		
22	3	3		5					1		
21	4	4		6					2		
20	5	5		7					3		
19	6	6			0				4		
18	7	7			1				5		
17	X	2			2				6		
16	0	3			3				7		
15	1	4			4					0	
14	2	5			5					1	
13	3	6			6					2	
12	4	7			7					3	
11	5	2				0				4	
10	6	3				1				5	
09	7	4				2				6	
08	X	5				3				7	
07	0	6				4					0
06	1	7				5					1
05	2	2				6					2
04	3	3				7					3
03	4	4					0				4
02	5	5					1				5
01	6	6					2				6
00	7**	7					3				7

*Most significant byte **Least significant byte

418 FORMAT

WORD	A	B	C BYTE 1	2	3	4	5	6	7	8	9
17	X*	2	0		2		4		6		
16	0	3	1		3		5		7		
15	1	4	2		4		6			0	
14	2	5	3		5		7			1	
13	3	6	4		6			0		2	
12	4	7	5		7			1		3	
11	5	2	6			0		2		4	
10	6	3	7			1		3		5	
09	7	4		0		2		4		6	
08	X**	5		1		3		5		7	
07	0	6		2		4		6			0
06	1	7		3		5		7			1
05	2	2		4		6			0		2
04	3	3		5		7			1		3
03	4	4		6			0		2		4
02	5	5		7			1		3		5
01	6	6			0		2		4		6
00	7	7			1		3		5		7

*Most significant byte **Least significant byte