CRAY-2 BLOCK DIAGRAM

16

FLOATING POINT FUNCTIONAL UNITS

FOREGROUND → RECIPROCAL SQUARE ROOT LOOK-UP TABLE RA

ADD

MULTIPLY

VECTOR REGISTERS
V7 V6 V5 V4 V3 V2 V1 V0
00 VO
77 VR's

MULTIPLY
(MULTIPLY, RECIPROCAL, SQUARE ROOT)
RA MA MB MC MD ME FA FB FC

Si Vi
Sj Sk Vk
Vj

VECTOR FUNCTIONAL UNITS
LOGICAL
INTEGER
(ADD, SHIFT, POP/PARITY, L.Z., IOTA)
VL VA VB

Vj
Vi Vk
Vi

Vj
Sj Vk
Vi

Ak

VECTOR CONTROL ← VECTOR MASK
Si VL

SCALAR REGISTERS
S7 S6 S5 S4 S3 S2 S1 S0
VR's

Si Sj Sk
Si

Si Sj Sk
Si

SCALAR FUNCTIONAL UNITS
LOGICAL
SHIFT
INTEGER
(ADD, POP/PARITY LEADING ZERO)
GA GB

VR Ak

jk

RTC
VL

Si

Si Vi   Si Si Vi

ADDRESS REGISTERS
A7 A6 A5 A4 A3 A2 A1 A0
AR

LOCAL MEMORY
ADDR
WA
Aj Ak Ai

ADDRESS FUNCTIONAL UNITS
MULTIPLY
ADD
AM
AR

Ai Ak
Ai

COMMON MEMORY

Ai

Ai Ar
VECTOR CONTROL ← VECTOR LENGTH AR

INSTRUCTION BUFFERS
7 6 5 4 3 2 1 0
00 0
17 1A

FETCH

Same As XM-P

INSTRUCTION ISSUE QUEUE JA,JB,JC

Si Ai ik → ISSUE

P IB
+1

B.G. STATUS EA

C.M. STATUS EB

BASE TA

LIMIT TA

BACKGROUND CPU A
BACKGROUND CPU B
BACKGROUND CPU C
BACKGROUND CPU D

CPU A-D SEMAPHORE FLAGS 0-7

FOREGROUND PROCESSOR. KA KB KC

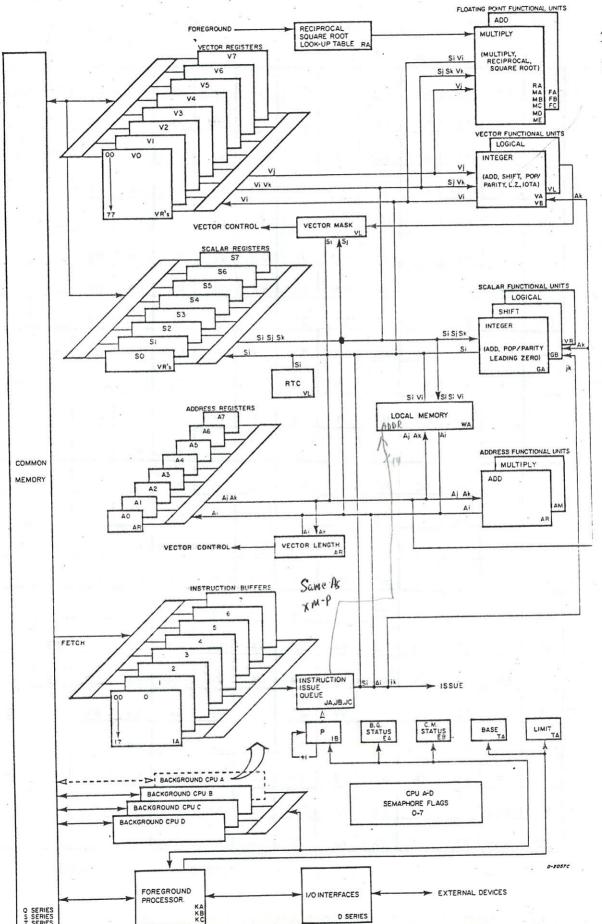I/O INTERFACES D SERIES → EXTERNAL DEVICES

Q SERIES
S SERIES
T SERIES

D-2057C

1 Floating Add
2 Floating MUL
1 Scalar
1 VI, VL
1 Address Add Mul

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