

| REV. <b>B</b><br>DWG. NO. 02166<br>SHEET 1 OF 9 | REVISIONS |       |                        |           |         |
|-------------------------------------------------|-----------|-------|------------------------|-----------|---------|
|                                                 | SYM.      | SHEET | DESCRIPTION            | APPROV.   | DATE    |
|                                                 | A         |       | Released to Production | <i>RK</i> | 10/6/80 |
|                                                 | B         | 3     | Corrected Part Number  | <i>RK</i> | 10/6/80 |

|                       |                 |                                                               |                                                                                                                                          |                   |                  |
|-----------------------|-----------------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|
| DRAWN<br><b>MAS</b>   | DATE<br>9-22-80 | TITLE<br>PRODUCT SPECIFICATION<br>BI-507 UNIVERSAL LOGIC CARD |  <b>DATARAM CORPORATION</b><br>CRANBURY<br>NEW JERSEY | DWG. NO.<br>02166 | REV.<br><b>B</b> |
| CHECKED               | DATE            |                                                               |                                                                                                                                          | SHEET 1 OF 9      |                  |
| ENGR.<br><i>RK</i>    | DATE<br>200580  |                                                               |                                                                                                                                          |                   |                  |
| APPROVED<br><i>RK</i> | DATE<br>10/6/80 |                                                               |                                                                                                                                          |                   |                  |

## I. BI-507 UNIVERSAL LOGIC CARD

### 1.0 GENERAL

The BI-507 Universal Logic Card has been designed to provide the user with ample area for any interface logic that may be required between the CPU and the memory system.

### 2.0 MECHANICAL

The card measures 13.64" x 16.4" and is designed to fit in the BULK CORE or BULK SEMI standard chassis. (See Figure 1.) The card contains two 120-pin .100" center terminal strips designated MEM P9 and I/O P10 which mate with the CDC type connectors designated J9 and J10, respectively. The pin assignments for J9 and J10 are given in Tables I and II.

### 3.0 BULK CHASSIS AND UNIVERSAL LOGIC CARD

The BULK CORE and BULK SEMI chassis contain two connectors, J9 and J10, which are used for the Bulk Universal Logic Card.

Connector J9 has been dedicated to interface to the memory modules via printed circuit etch on the backplanes. Connector J10 is used to interface with the input/output connectors. The input/output connectors are four 40-pin ribbon cable connectors for BULK CORE or two 40 and two 50-pin ribbon cable connectors for BULK SEMI located at the rear of the chassis. They are designated as Connectors A, B, C, and D. The even-numbered pins on Connectors A-D may be used to carry data, address or control signals and the odd-numbered pins are dedicated to signal returns. Therefore, signals in the ribbon cable are arranged such that alternate conductors about an interface signal are at signal ground potential.

The BULK CORE chassis has one slot which can be used for a Universal Logic Card. The BULK SEMI chassis has three slots available that can be used for multiple Universal Logic Cards.

### 4.0 CARD LAYOUT

IC socket holes are provided in a universal pattern allowing mounting of dual-in-line devices of various pin counts and center to center widths of .3, .4 and .6 inches. Table III lists the approximate number of various size devices which will fit on the card.



**DATARAM CORPORATION**  
CRANBURY NEW JERSEY

DWG. NO.

02166

SHEET 2

OF 9

REV.

B



|                     |           |
|---------------------|-----------|
| 16 Pin Dip .3 ctrs. | 240 chips |
| 20 Pin Dip .3 ctrs. | 192 chips |
| 22 Pin Dip .4 ctrs. | 96 chips  |
| 28 Pin Dip .6 ctrs. | 72 chips  |
| 40 Pin Dip .6 ctrs. | 48 chips  |

TABLE III - Chip Capacity

## 5.0 TYPICAL INTERFACE APPLICATION

A typical interface example using the Universal Logic Card is shown in Figure 2. Address data from the CPU enters connector P10 on the I/O logic card. Bus receivers at P10 are wire wrapped on the card and route the data to memory drivers at P9 which provides the interface to the memory. In those instances where it is desirable to store data coming from the CPU, latches may be employed between the P10 bus receivers and the P9 drivers.

## 6.0 PART NUMBER

The BI-507 Universal Logic Card part number is:

62919      BI-507 Universal Logic Card



**DATARAM CORPORATION**  
CRANBURY      NEW JERSEY

DWG. NO.

02166

SHEET

3

OF

9

REV.

B

**TABLE I**  
**UNIVERSAL LOGIC CARD**  
**CONNECTOR J9 MEMORY INTERFACE**

**Odd Pins - Component Side**

**Even Pins - Solder (Wirewrap) Side**

| <u>Pin</u> | <u>Signal</u>                  | <u>Pin</u> | <u>Signal</u>                   |
|------------|--------------------------------|------------|---------------------------------|
| 1          | GND                            | 2          | GND                             |
| 3          | +5V                            | 4          | +5V                             |
| 5          | DTA15N                         | 6          | DTA06N                          |
| 7          | ADRO5N                         | 8          | ADRO7N                          |
| 9          | DTA07N                         | 10         |                                 |
| 11         | ADR14N                         | 12         | PWRINTL                         |
| 13         | DTA14N                         | 14         | DTA32N                          |
| 15         | ADRO6N                         | 16         | DTA24N                          |
| 17         | DTA16N                         | 18         | DTA34N                          |
| 19         | ADR13N                         | 20         | DTA25N                          |
| 21         | DTA05N                         | 22         | DTA23N                          |
| 23         | ADRO3N                         | 24         | DTA33N                          |
| 25         | DTA17N                         | 26         | DTA35N                          |
| 27         | ADR15N                         | 28         | ADR24N                          |
| 29         | DTA13N                         | 30         | DTA31N                          |
| 31         | ADR16N                         | 32         | STATN*                          |
| 33         | DTA04N                         | 34         | DTA22N                          |
| 35         | ADR10N                         | 36         | STAVN*                          |
| 37         | IDACN                          | 38         | UCERN*                          |
| 39         | ADROON                         | 40         | CRERN*                          |
| 41         | ODAVN                          | 42         | CLRBYN*                         |
| 43         | ADRO4N                         | 44         | MEMSIZ3                         |
| 45         | ADRACN                         | 46         | MEMSIZ4                         |
| 47         | ADR12N                         | 48         | MEMSIZ5                         |
| 49         | ADRO8N                         | 50         | MEMSIZ6                         |
| 51         | ADRO1N                         | 52         |                                 |
| 53         | ADRO9N                         | 54         | ADR20N                          |
| 55         | ADRO2N                         | 56         | ADR21N                          |
| 57         | ADR11N                         | 58         | ADR22N                          |
| 59         | GND                            | 60         | GND                             |
| 61         | ADRAVN                         | 62         | ADR23N                          |
| 63         | GND                            | 64         | GND                             |
| 65         | MWRUBN (Upper Byte Lower Word) | 66         | MWRUBAN (Upper Byte Upper Word) |
| 67         | PWRINTN                        | 68         |                                 |
| 69         | MRDRN                          | 70         |                                 |
| 71         | NORMN                          | 72         |                                 |
| 73         | MWRLBN (Lower Byte Lower Word) | 74         | MWRLBAN (Lower Byte Upper Word) |
| 75         | RADVLDN                        | 76         |                                 |
| 77         | GND                            | 78         | GND                             |
| 79         | ADR17N                         | 80         |                                 |
| 81         | ADR18N                         | 82         |                                 |
| 83         | ADR19N                         | 84         |                                 |
| 85         | RADR1N †                       | 86         |                                 |
| 87         | RADR2N †                       | 88         |                                 |
| 89         | RADRON †                       | 90         |                                 |

\* Used by BULK SEMI only

† Used by BULK CORE only



**DATARAM CORPORATION**  
 CRANBURY NEW JERSEY

DWG. NO.

02166

SHEET

4

OF

9

REV.

B

| <u>Pin</u> | <u>Signal</u> | <u>Pin</u> | <u>Signal</u> |
|------------|---------------|------------|---------------|
| 91         | DTA08N        | 92         | DTA26N        |
| 93         | DTA03N        | 94         | DTA21N        |
| 95         | DTA12N        | 96         | DTA30N        |
| 97         | DTA00N        | 98         | DTA18N        |
| 99         | DTA11N        | 100        | DTA29N        |
| 101        | MEMSIZ2       | 102        |               |
| 103        | DTA09N        | 104        | DTA27N        |
| 105        | MEMSIZ1       | 106        |               |
| 107        | DTA02N        | 108        | DTA20N        |
| 109        | DTA10N        | 110        | DTA28N        |
| 111        | DTA01N        | 112        | DTA19N        |
| 113        | MEMSIZ0       | 114        | MBYN*         |
| 115        | +5V           | 116        | +5V           |
| 117        | GND           | 118        | GND           |
| 119        |               | 120        |               |

Data Bits 0-7, 17      Upper Byte, Lower Word

Data Bits 8-16      Lower Byte, Lower Word

Data Bits 18-25, 35      Upper Byte, Upper Word

Data Bits 26-34      Lower Byte, Upper Word

\* Used by BULK SEMI only



**DATARAM CORPORATION**

CRANFORD

NEW JERSEY

DWG. NO.

02166

SHEET

5

OF

9

REV.

B



**TABLE II**  
**UNIVERSAL LOGIC CARD**  
**INPUT/OUTPUT CONNECTOR J10**

**Odd Pins - Component Side**

| <u>Pin</u> | <u>Signal</u>  |
|------------|----------------|
| 1          | GND            |
| 3          | +5 VOLTS       |
| 5          | SIG RTN CONN A |
| 7          | SIG RTN CONN A |
| 9          | CONN A PIN 40  |
| 11         | CONN A PIN 38  |
| 13         | CONN A PIN 36  |
| 15         | CONN A PIN 34  |
| 17         | CONN A PIN 32  |
| 19         | CONN A PIN 30  |
| 21         | CONN A PIN 28  |
| 23         | CONN A PIN 26  |
| 25         | CONN A PIN 24  |
| 27         | CONN A PIN 22  |
| 29         | CONN A PIN 20  |
| 31         | CONN A PIN 18  |
| 33         | CONN A PIN 16  |
| 35         | CONN A PIN 14  |
| 37         | CONN A PIN 12  |
| 39         | CONN A PIN 10  |
| 41         | CONN A PIN 8   |
| 43         | CONN A PIN 6   |
| 45         | CONN A PIN 4   |
| 47         | CONN A PIN 2   |
| 49         | SIG RTN CONN A |
| 51         | SIG RTN CONN A |
| 53         | SIG RTN CONN A |
| 55         | SIG RTN CONN C |
| 57         | SIG RTN CONN C |
| 59         | SIG RTN CONN C |
| 61         | CONN C PIN 50) |
| 63         | CONN C PIN 48) |
| 65         | CONN C PIN 46) |
| 67         | CONN C PIN 44) |
| 69         | CONN C PIN 42) |
| 71         | CONN C PIN 40  |
| 73         | CONN C PIN 38  |
| 75         | CONN C PIN 36  |
| 77         | CONN C PIN 34  |
| 79         | CONN C PIN 32  |
| 81         | CONN C PIN 30  |
| 83         | CONN C PIN 28  |
| 85         | CONN C PIN 26  |
| 87         | CONN C PIN 24  |
| 89         | CONN C PIN 22  |

Not  
Used  
on  
BULK  
CORE

**Even Pins - Solder (Wirewrap) Side**

| <u>Pin</u> | <u>Signal</u>  |
|------------|----------------|
| 2          | GND            |
| 4          | +5 VOLTS       |
| 6          | SIG RTN CONN B |
| 8          | SIG RTN CONN B |
| 10         | CONN B PIN 2   |
| 12         | CONN B PIN 4   |
| 14         | CONN B PIN 6   |
| 16         | CONN B PIN 8   |
| 18         | CONN B PIN 10  |
| 20         | CONN B PIN 12  |
| 22         | CONN B PIN 14  |
| 24         | CONN B PIN 16  |
| 26         | CONN B PIN 18  |
| 28         | CONN B PIN 20  |
| 30         | CONN B PIN 22  |
| 32         | CONN B PIN 24  |
| 34         | CONN B PIN 26  |
| 36         | CONN B PIN 28  |
| 38         | CONN B PIN 30  |
| 40         | CONN B PIN 32  |
| 42         | CONN B PIN 34  |
| 44         | CONN B PIN 36  |
| 46         | CONN B PIN 38  |
| 48         | CONN B PIN 40  |
| 50         | SIG RTN CONN B |
| 52         | SIG RTN CONN B |
| 54         | SIG RTN CONN B |
| 56         | SIG RTN CONN D |
| 58         | SIG RTN CONN D |
| 60         | SIG RTN CONN D |
| 62         | CONN D PIN 2   |
| 64         | CONN D PIN 4   |
| 66         | CONN D PIN 6   |
| 68         | CONN D PIN 8   |
| 70         | CONN D PIN 10  |
| 72         | CONN D PIN 12  |
| 74         | CONN D PIN 14  |
| 76         | CONN D PIN 16  |
| 78         | CONN D PIN 18  |
| 80         | CONN D PIN 20  |
| 82         | CONN D PIN 22  |
| 84         | CONN D PIN 24  |
| 86         | CONN D PIN 26  |
| 88         | CONN D PIN 28  |
| 90         | CONN D PIN 30  |



**DATARAM CORPORATION**  
 CRANFORD NEW JERSEY

DWG. NO. 02166

SHEET 6 OF 9

REV.  
B

| <u>Pin</u> | <u>Signal</u>  | <u>Pin</u> | <u>Signal</u>       |
|------------|----------------|------------|---------------------|
| 91         | CONN C PIN 20  | 92         | CONN D PIN 32       |
| 93         | CONN C PIN 18  | 94         | CONN D PIN 34       |
| 95         | CONN C PIN 16  | 96         | CONN D PIN 36       |
| 97         | CONN C PIN 14  | 98         | CONN D PIN 38       |
| 99         | CONN C PIN 12  | 100        | CONN D PIN 40       |
| 101        | CONN C PIN 10  | 102        | CONN D PIN 42) Not  |
| 103        | CONN C PIN 8   | 104        | CONN D PIN 44) Used |
| 105        | CONN C PIN 6   | 106        | CONN D PIN 46) on   |
| 107        | CONN C PIN 4   | 108        | CONN D PIN 48) BULK |
| 109        | CONN D PIN 2   | 110        | CONN D PIN 50) CORE |
| 111        | SIG RTN CONN C | 112        | SIG RTN CONN D      |
| 113        | SIG RTN CONN C | 114        | SIG RTN CONN D      |
| 115        | SIG RTN CONN C | 116        | SIG RTN CONN D      |
| 117        | +5 VOLTS       | 118        | +5 VOLTS            |
| 119        | GND            | 120        | GND                 |

Odd Pins on Input/Output Connector A-D are used for Signal Return.



**DATARAM CORPORATION**  
CRANBURY NEW JERSEY

DWG. NO.

02166

SHEET 7

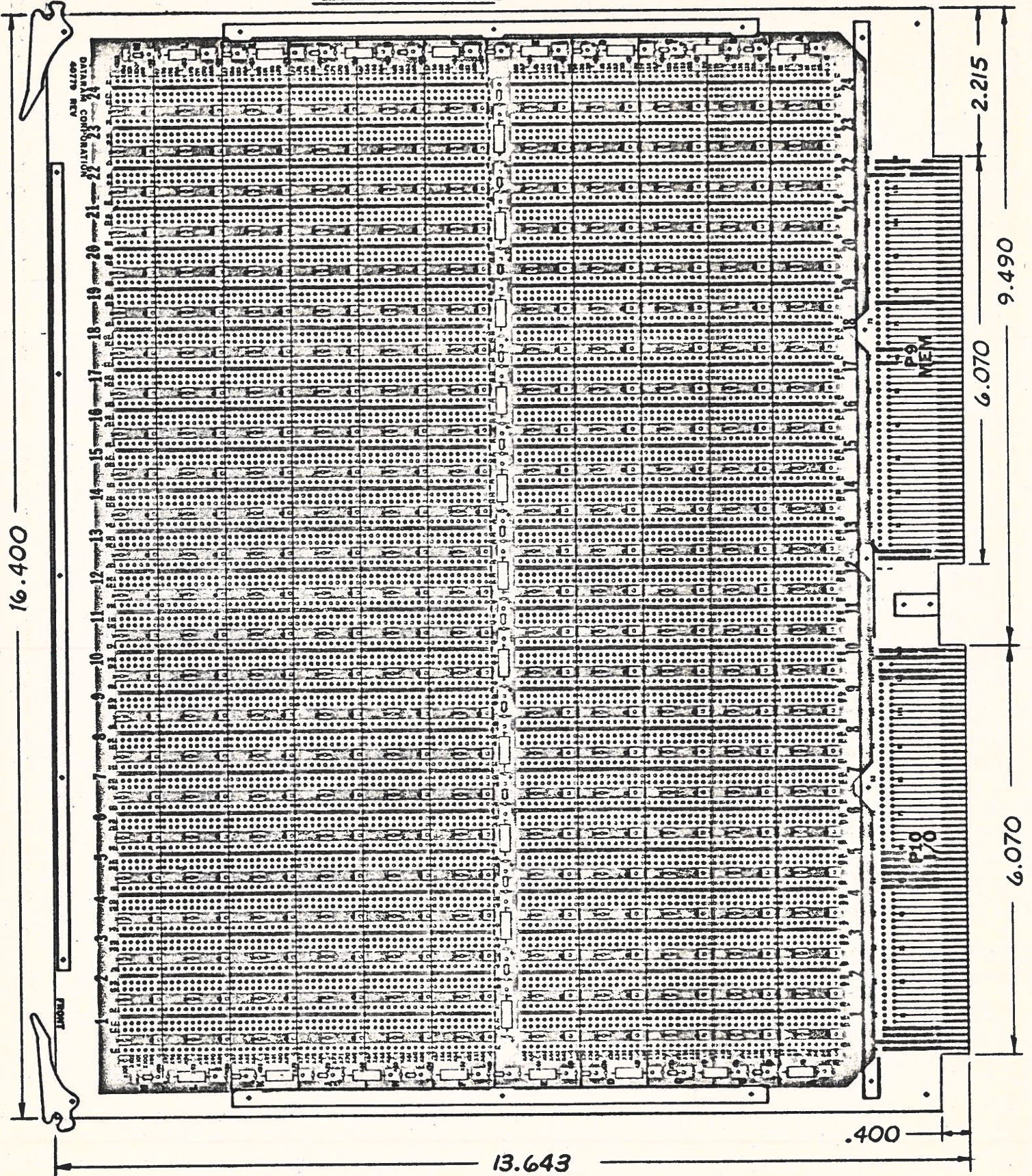
OF 9

REV.

B



FIGURE 1



BOARD THICKNESS IS .062 NOMINAL



**DATARAM CORPORATION**  
CRANBURY NEW JERSEY

DWG. NO.

02166

SHEET 8

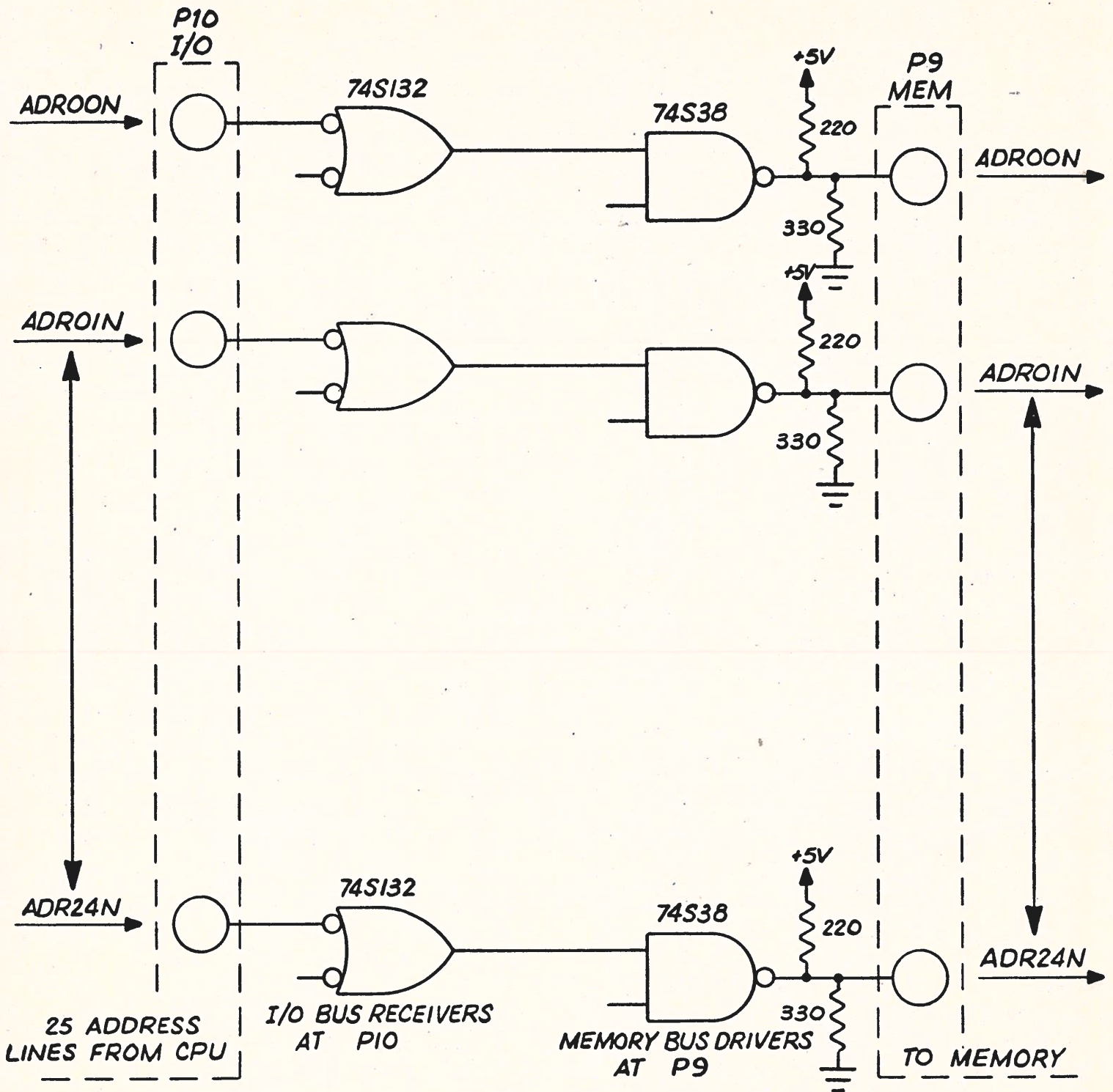
OF 9

REV.

B



FIGURE 2



**DATARAM CORPORATION**  
CRANBURY NEW JERSEY

DWG. NO. 02166

SHEET 9 OF 9

REV.

B

|                                |           |       |                        |              |
|--------------------------------|-----------|-------|------------------------|--------------|
| REV. A                         | REVISIONS |       |                        |              |
|                                | SYM.      | SHEET | DESCRIPTION            | APPROV. DATE |
| DWG. NO. 62919<br>SHEET 1 OF 2 | A         |       | RELEASED TO PRODUCTION | RK 10 SEP 80 |
|                                |           |       |                        |              |

*This is a better packaged  
BI-501, which allows  
greater flexibility with  
chip sizes. Price is the  
same as 501.*

*RJ*

|                                                                                                                                       |                   |                                                               |                                   |           |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------|-----------------------------------|-----------|
| DRAWN<br>MAS                                                                                                                          | DATE<br>9-10-80   | TITLE<br><br>BILL OF MATERIALS<br>BI-507 UNIVERSAL LOGIC CARD | DWG. NO.<br>62919<br>SHEET 1 OF 2 | REV.<br>A |
| CHECKED<br>RK                                                                                                                         | DATE              |                                                               |                                   |           |
| ENGR.<br>RK                                                                                                                           | DATE<br>10 SEP 80 |                                                               |                                   |           |
| APPROVED<br><i>[Signature]</i>                                                                                                        | DATE<br>9/10/80   |                                                               |                                   |           |
|  <b>DATARAM CORPORATION</b><br>CRANBURY NEW JERSEY |                   |                                                               |                                   |           |



TITLE: B/M BI-507 UNIVERSAL LOGIC CARD

[illegible]