**PIPLINED DATAPATH**

1. **Thiết kế datapath**

**Diagram, box and whisker chart

Description automatically generated**

**-**Datapath gồm:

+register (tái sử dụng)

Diagram

Description automatically generated

+tri-state (tái sử dụng)

Diagram

Description automatically generated

+Right Shifter 1, 3 (tái sử dụng)

A picture containing diagram

Description automatically generated

+AU1

+AU2

1. Thiết kế AU1

|  |  |
| --- | --- |
| CTRL1[1..0] | Function |
| 01 | Abs |
| 10 | Min |
| 11 | Max |

+Schematic:

A picture containing different, several

Description automatically generated

+Đóng gói:

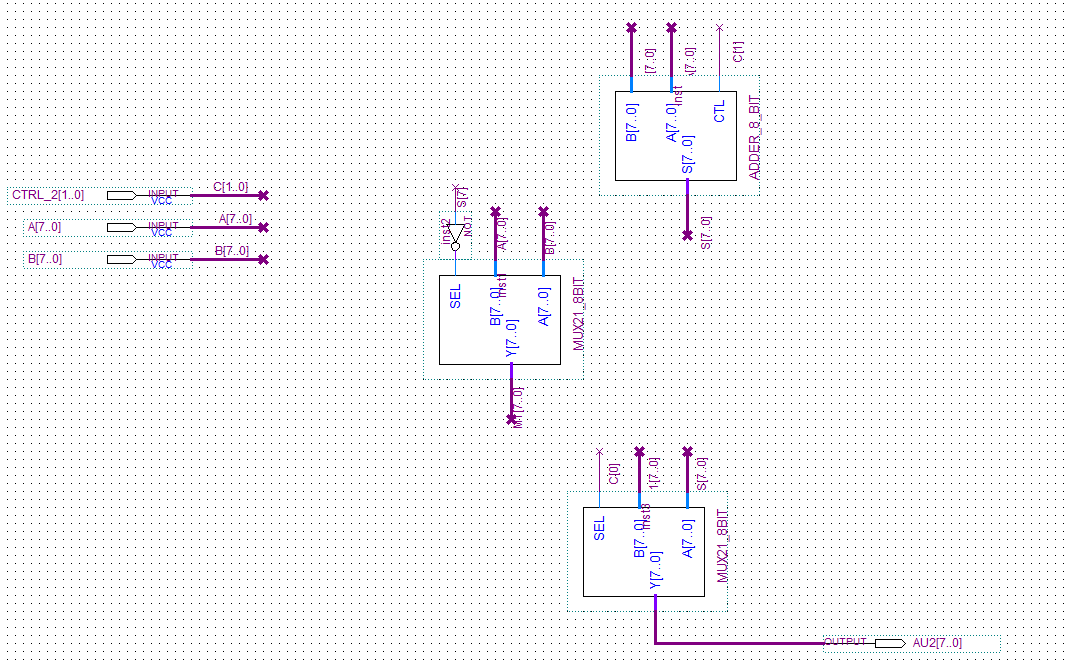
Diagram

Description automatically generated

1. Thiết kế AU2

|  |  |
| --- | --- |
| CTRL2[1..0] | Function |
| 00 | Add |
| 10 | Sub |
| 11 | Max |

+Schematic:



+Đóng gói:

Diagram

Description automatically generated

1. Tổng hợp Datapath:

+schematic:

A picture containing decorated

Description automatically generated

Table

Description automatically generated

+Đóng gói:

Table

Description automatically generated

1. **Thiết kế khối controller**
2. Sơ đồ chuyển trạng thái

Diagram

Description automatically generated

1. Bảng chuyển trạng thái

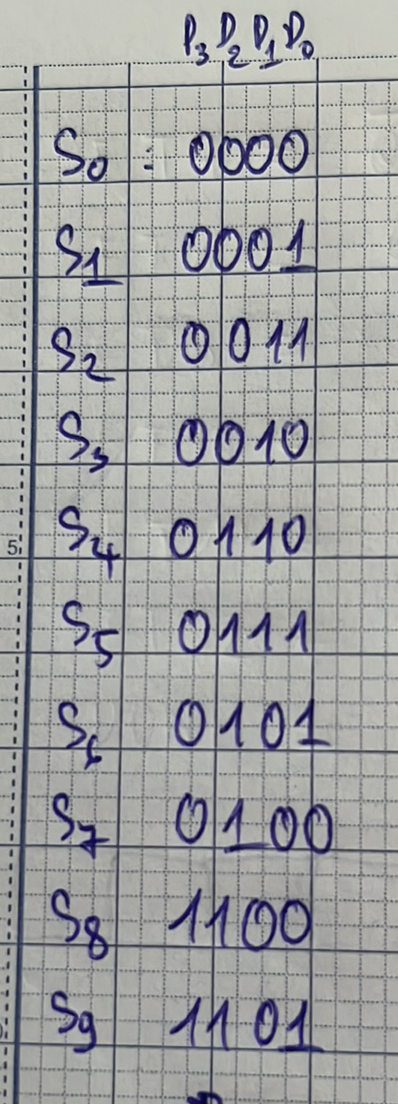
Chart

Description automatically generated

1. Mã hóa

A piece of paper with writing on it

Description automatically generated

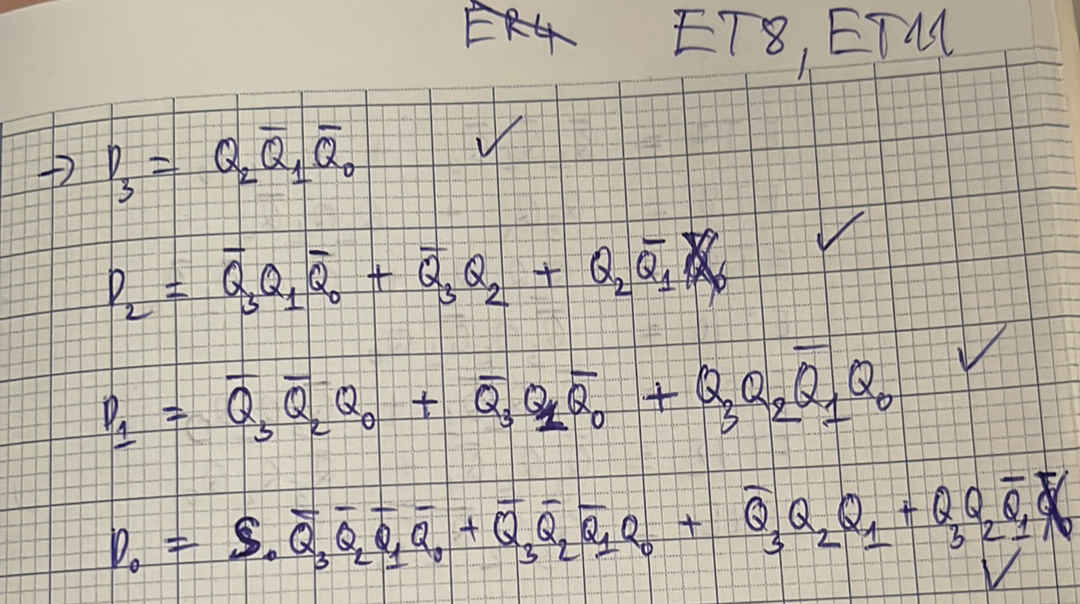


1. Bảng giá trị các ngõ ra

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ER1** | **ER2** | **ER3** | **ER4** | **ER5** | **AU1[1]** | **AU1[0]** | **AU2[1]** | **AU2[0]** | **ET1** | **ET2** | **ET3** | **ET4** | **ET5** | **ET6** | **ET7** | **ET8** | **ET9** | **ET10** | **ET11** | **ET12** | **DONE** |
| **S0** | 1 | 1 | 0 | 0 | 0 | X | X | X | X | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S1** | 1 | 0 | 0 | 0 | 0 | 0 | 1 | X | X | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S2** | 0 | 1 | 0 | 0 | 0 | 0 | 1 | X | X | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S3** | 0 | 0 | 0 | 0 | 1 | 1 | 0 | X | X | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S4** | 0 | 0 | 1 | 1 | 0 | 1 | 1 | X | X | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| **S5** | 1 | 1 | 1 | 0 | 0 | X | X | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| **S6** | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| **S7** | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| **S8** | 0 | 0 | 0 | 0 | 1 | 1 | 0 | X | X | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **S9** | 0 | 0 | 1 | 1 | 0 | 1 | 1 | X | X | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. Khối next-state

-Biểu thức:



-Schematic:

A picture containing diagram

Description automatically generated

-Đóng gói:

Table

Description automatically generated with medium confidence

1. Khối present-state

-schematic:

Diagram, schematic

Description automatically generated

-đóng gói:

Table

Description automatically generated

1. Khối output

-schematic:

Table

Description automatically generated

Graphical user interface, table

Description automatically generated

Diagram, schematic

Description automatically generated

A picture containing diagram

Description automatically generated

-đóng gói:

A picture containing timeline

Description automatically generated

1. Tổng hợp controller

-schematic:

Diagram

Description automatically generated

-đóng gói:

Timeline

Description automatically generated with low confidence

1. Kết nối toàn hệ thống

-schematic:

Diagram

Description automatically generated with medium confidence

-Kết quả mô phỏng:

