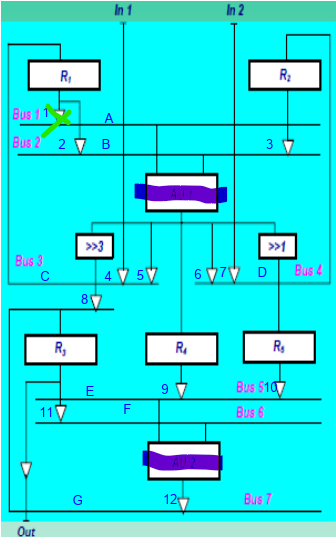
**PIPLINED DATAPATH**

1. **Thiết kế datapath**

****

**-**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 (có piplined)

+AU2 (có piplined)

1. Thiết kế AU1

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

+Schematic:

A picture containing text, diagram, line, number

Description automatically generated

+Đóng gói:

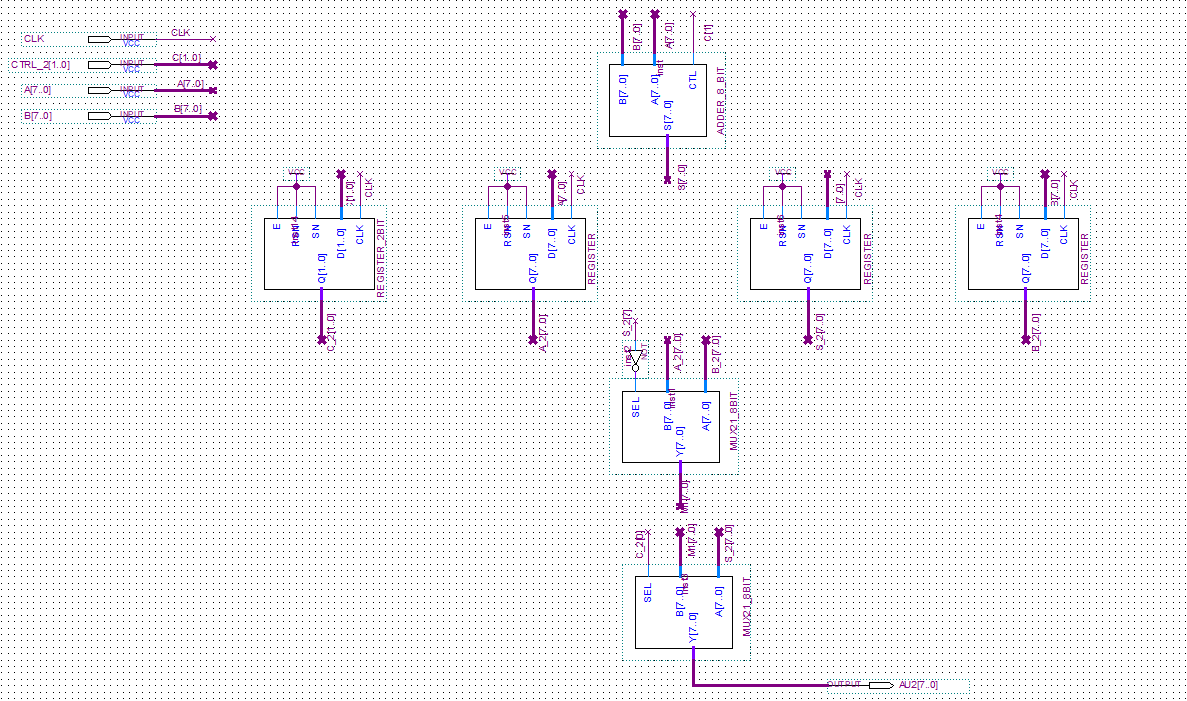
A picture containing text, screenshot, font, line

Description automatically generated

1. Thiết kế AU2

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

+Schematic:



+Đóng gói:

A picture containing text, screenshot, line, font

Description automatically generated

1. Tổng hợp Datapath:

+schematic:

A picture containing text, line, number, diagram

Description automatically generated

A picture containing text, number, line, diagram

Description automatically generated

+Đóng gói:

A screenshot of a computer

Description automatically generated with medium confidence

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

A picture containing text, font, diagram, circle

Description automatically generated

1. Bảng chuyển trạng thái

A sheet of paper with writing on it

Description automatically generated with low confidence

1. Mã hóa

A picture containing text, handwriting, whiteboard, ink

Description automatically generated

A picture containing text, handwriting, handwritten, document

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** | **DONE** |
| **S0** | 1 | 1 | 0 | 0 | 0 | X | X | X | X | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| **S1** | 0 | 0 | 0 | 0 | 0 | 0 | 1 | X | X | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S2** | 1 | 0 | 0 | 0 | 0 | 0 | 1 | X | X | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S3** | 0 | 1 | 0 | 0 | 0 | X | X | X | X | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S4** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | X | X | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S5** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | X | X | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **S6** | 0 | 0 | 1 | 1 | 0 | X | X | X | X | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| **S7** | 1 | 1 | 0 | 0 | 0 | X | X | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| **S8** | 0 | 0 | 1 | 0 | 0 | 0 | 1 | X | X | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| **S9** | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| **S10** | 0 | 1 | 1 | 0 | 0 | X | X | X | X | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| **S11** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **S12** | 0 | 0 | 1 | 0 | 1 | 1 | 1 | X | X | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| **S13** | 0 | 0 | 1 | 1 | 0 | X | X | X | X | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |

1. Khối next-state

-Biểu thức:

A picture containing text, whiteboard, handwriting, document

Description automatically generated

-Schematic:

A picture containing text, screenshot, line, number

Description automatically generatedA picture containing text, screenshot, number, line

Description automatically generated

-Đóng gói:

A screen shot of a cell phone

Description automatically generated with low confidence

1. Khối present-state

-schematic:

Diagram, schematic

Description automatically generated

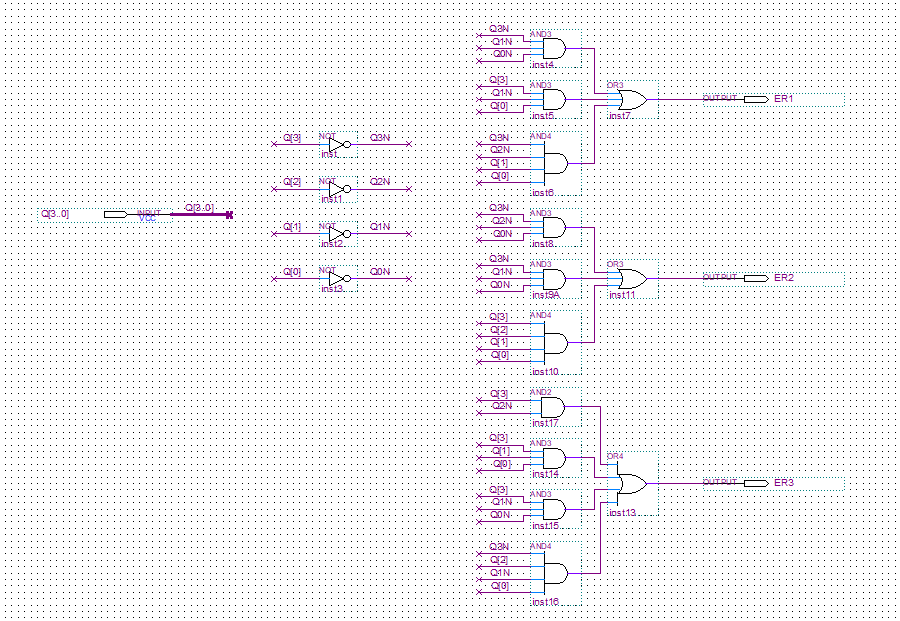
-đóng gói:

A screen shot of a cell phone

Description automatically generated with low confidence

1. Khối output

-schematic:

A picture containing text, stitch

Description automatically generatedA picture containing text, line, diagram, pattern

Description automatically generatedA picture containing text, diagram, line, number

Description automatically generated

-đóng gói:

A screen shot of a computer

Description automatically generated with low confidence

1. Tổng hợp controller

-schematic:

A picture containing text, screenshot, diagram, number

Description automatically generated

-đóng gói:

A screen shot of a computer

Description automatically generated with medium confidence

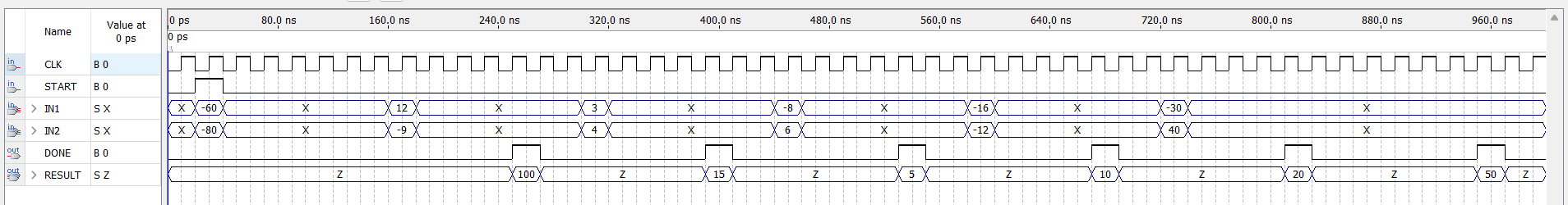
1. Kết nối toàn hệ thống

-schematic:

A picture containing text, diagram, line, parallel

Description automatically generated

-Kết quả mô phỏng:



( **Nếu không nhìn rõ thì ông dán 1 hình kết quả wf tổng quát rồi cắt kết quả wf ra làm đôi cho nhìn rõ =)) )**