👥 Task Division for 4 Members (with File Locations Updated)

Overview

Jared: CPU, Coprocessor, Memory & Map

- Block diagram for **8086**, **8087**, and overall architecture.
- **Memory map:** 1MB organization, memory types, decoding.
- **Address decoding logic** for memory.
- **Relevant PDFs:** 1, 4, 6, 7
- **Location:** Add your work to **CPU_Memory.md**, and include code in:
  - CPU_Memory.asm (assembly code)
  - CPU_Memory_pseudocode.md (pseudocode)
  - CPU_Memory.txt (optional: summaries/raw code)

🎯 WORK COMPLETED

📊 System Architecture Design

Complete 8086 system block diagram with all major components

8087 coprocessor integration for floating-point operations

System bus architecture (20-bit address, 16-bit data, control signals)

Hierarchical component organization showing processor, memory, controllers, and peripherals

💾 Memory System Implementation

1MB memory organization with clear address ranges:

768KB RAM (user programs and data)

128KB ROM (system BIOS)

128KB I/O mapped space (peripherals)

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    </li>
    <li><b>Complete memory map</b> with specific address ranges for each
component</li>
    <li><b>Address decoding logic</b> using 74138 decoders for memory and I/O
selection</li>
    <li><b>Physical memory configuration</b> with DRAM and EPROM chip
specifications</li>
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🔌 I/O System Coordination

Complete I/O address space allocation for all 10 peripheral devices

Team address coordination preventing conflicts between members

Peripheral interface definitions for all controllers (8259A, 8237, 8251, 8255, 8279, 8272, etc.)

Expansion area reservation for future system growth

📝 Software Implementation

Assembly language initialization routines with complete system startup

Pseudocode documentation for all major system functions

Memory management routines (read, write, copy, fill operations)

8087 coprocessor initialization with detection and testing

Team coordination functions with address mapping

Jesmarie: Parallel/Serial, Printer, Keyboard/Display
- **8255** (parallel), **8251** (serial), printer interface.
- **8279** (keyboard/display).
- Block diagrams for these peripherals and their connections.
- **Relevant PDFs:** 1, 2, 5
- **Location:** Add your work to `IO_Peripherals.md` (create if it doesn't exist).

Valeria: Data Conversion, USB (DMA), Interrupts
- **ADC**, **DAC** interfacing (block diagrams, connections).
- **USB interface** through DMA (**8237**).
- **8259** (interrupt controller) integration for I/O.
- **Relevant PDFs:** 1, 2, 3, 5
- **Location:** Add your work to `Data_Conversion_Interrupts.md` (create if it doesn't exist).

Giovanny: Diskette Controller (8272), DMA, Integration
- Diskette controller (floppy, **8272**), **8237 DMA** for high-speed data.
- Pseudocode for **USB** and diskette transfers using DMA.
- Help integrate all I/O into final system.
- **Relevant PDFs:** 3, 5, 6

- **Location:** Add your work to `Storage_DMA_Integration.md` (create if it doesn't exist).

📋 Task Division Summary for 4 Members

Member	Area	Key Components	Deliverables	Files Submitted
Jared	CPU & Memory Architecture	• 8086 CPU• 8087 Coprocessor• 1MB RAM/ROM• Address decoding	• Block diagrams• Memory map• Initialization code• Assembly routines	**CPU_Memory.md**CPU_Memory.asmCPU_Memory_pseudocode.mdCPU_Memory.txt
Jesmarie	User I/O Interface	• 16-digit 7-segment display• 64-key matrix keyboard• Printer	• Display driver• Keyboard scanner• Printer interface• Assembly examples	**IO_Peripherals.md**
Valeria	Communications & Interrupts	• RS-232 serial port• Parallel port• USB+DMA• 8259A interrupt controller	• Communication drivers• DMA controller• Interrupt handlers• USB routines	**Data_Conversion_Interrupts.md**
Giovanny	Data Conversion & Storage	• ADC (Analog-to-Digital)• DAC (Digital-to-Analog)• 8272 Floppy controller	• ADC/DAC drivers• Disk controller• Conversion routines• Storage examples	**Storage_DMA_Integration.md**