

Block Diagram View of EMD

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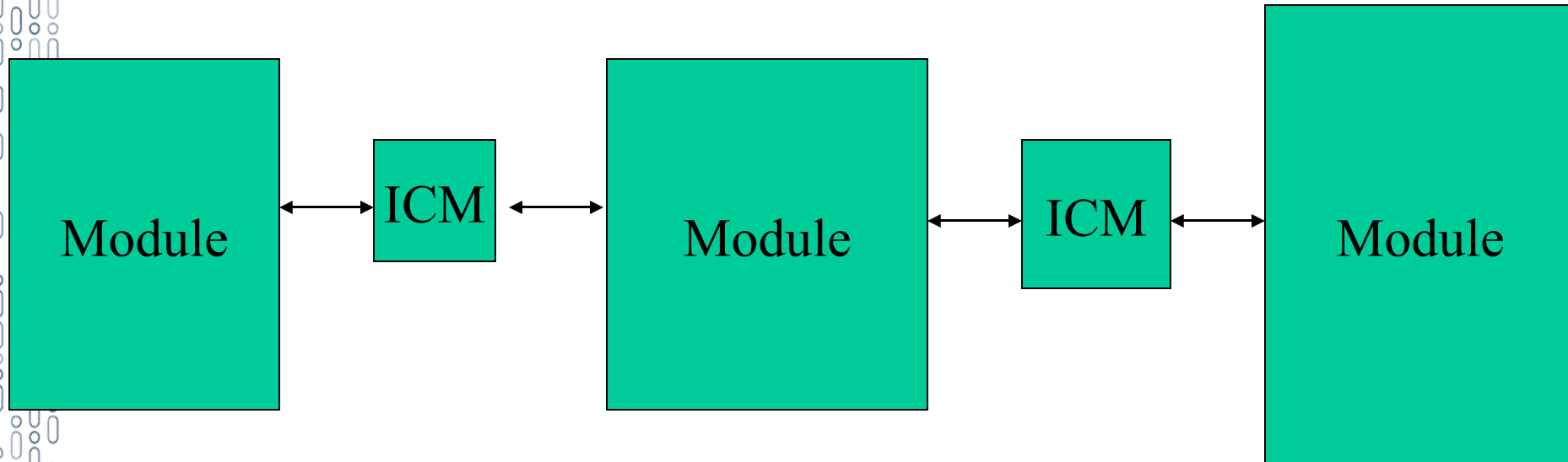
A system consists of Modules and Components

The EDA tool handles connections between modules

Note:

Narrow lines are ideal connections 

Wide lines are transmission lines 

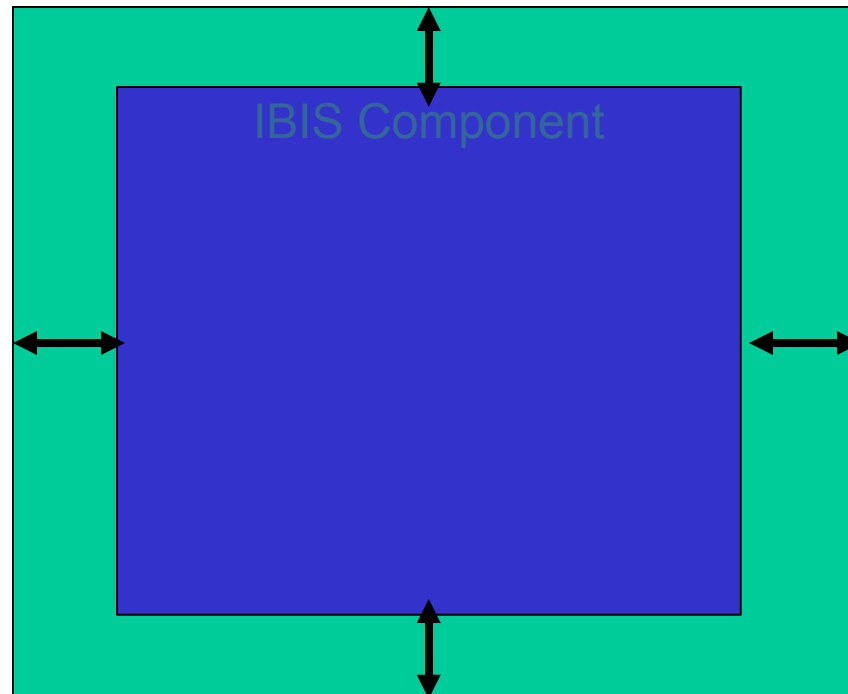


A Module can be a simple package

Connections often pin to pad

Signal Pads often same as # Signal Pins

Problematic for ICM because of series cap,
differentials, power distribution

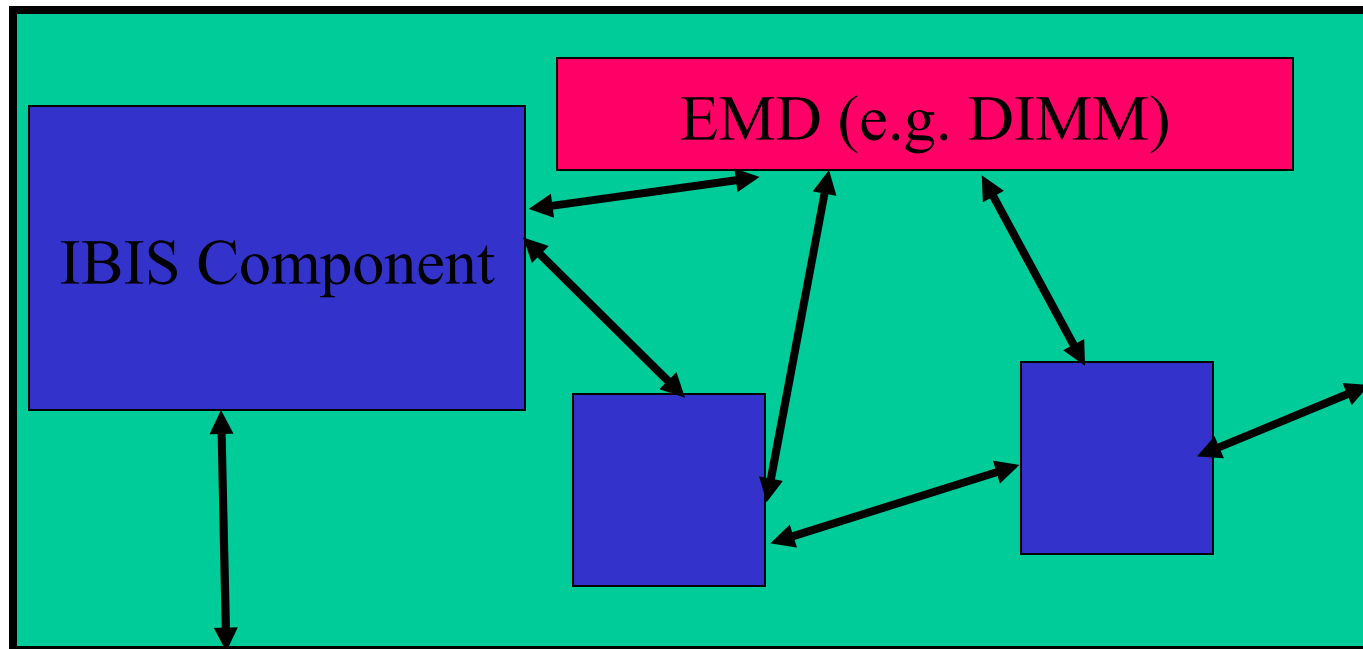


A Module can contain Components and EMD's

Connections between components

Connections to module connectors

Coupling (crosstalk) can occur between all buses

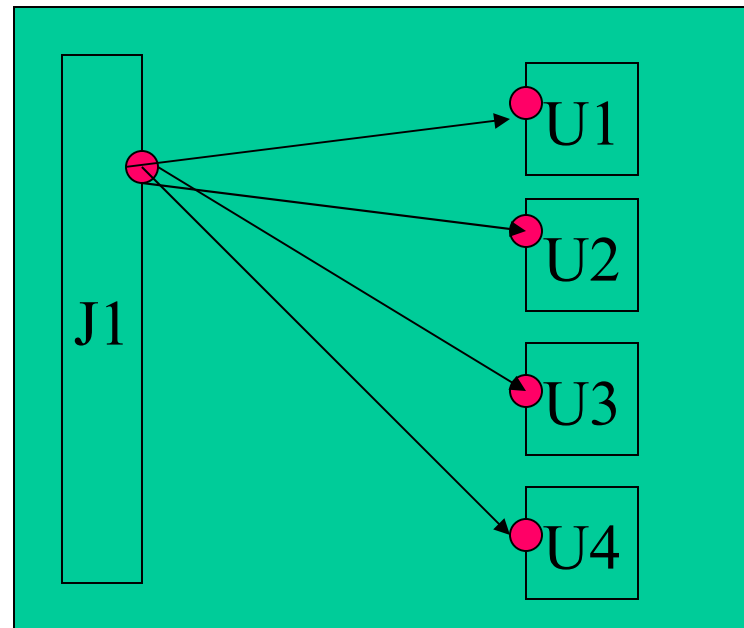


Nets

- CAD Net
 - Connected by copper (or silver or gold, ...)
 - Essentially 0. Ohm between “pins”
- Extended Net
 - Two or more CAD nets connected by
 - Series Resistor, Capacitor, Buffer, Mux, Quick Switch
- Electrical Net can be either
 - CAD Net
 - Extended Net

EMD Netlist

- List of EMD pins (external ports) in an electrical net
 - Connector pins
 - IBIS component pins
 - Test points
- This is just a netlist of pins, not a description of the details of the interconnection between pins
- EMD Netlist for electrical net ADDR
 - J1.7
 - U1.3
 - U2.3
 - U3.3
 - U4.3



Interconnect Netlist

- “Spice” netlist between electrical net pins
 - Transmission lines
 - RLC elements
 - Subckts
 - S-Parameter
- Describes the circuit elements (e.g. transmission lines between pins.)
- Netlist
 - .subckt ADDR J1.7 U1.3 U2.3 U3.3 U4.3
 - W1 J1.7 Tee1 L= ...
 - W2 Tee1 U1.3 L=
 - W3 Tee1 Tee2 L=
 - W4 Tee2 U2.3 L=
 - ...

