

**University of Texas at Dallas**  
**Department of Electrical Engineering**  
**EEDG 6306 - Application Specific Integrated Circuit Design**  
**Midterm Project**

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**Due on Midnight 12:00, October 19, 2016**

Submission for Midterm Project:

**(1) Your source code (2) Report (3) Presentation PPT**

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The Midterm project includes four parts:

**(1) Write a well-organized specification for MSDAP (20%).** The Spec. should cover the followings topics.

(1.1) Pin settings for MSDAP Chip (5%)

(1.2) Input/Output signal formats (5%)

(1.3) Operation mode (descriptions of FSM) (5%)

*Note\* Use your own languages and drawings. You are not asked to create your own version of Spec. but confirm the existing Spec. If you have any doubts about the existing Spec. ask TA or Professor. The rest 5% is for the clarity of your descriptions.*

**(2) Build a behavior model for MSDAP by using VHDL/Verilog (40%).**

(2.1) Match the signals format with the Spec. (10%)

(2.2) Match the state transition with the Spe. (10%)

(2.3) Generate correct output. (20%)

*Note\* (1) Avoid to use loop statements in your code. The behavior model is to verify the serial shift and accumulation function which is synchronized with system clock. The loop statement strongly destroys the above purpose. (2) You will have two channel inputs (two sets of rj/coeff/input) for this project. (3) **Two channel 800 consecutive 16bits-Zeros** will force the chip entering sleeping mode. (i.e. left channel detected 1000 consecutive 0s, right channel no consecutive 0s. The chip is awake). Non-zero value detected from **either channel** will awake the chip.*

**(3) Build a testbench for MSDAP by using VHDL/Verilog (30%).**

(3.1) Generate necessary input signals matched with the Spec. (15%)

(3.2) Collect outputs from MSDAP chip and generate the output file. (15%)

**(4) Write a project report and a presentation power point (10%)**

(4.1) Write in logical, formal and technical manner.

(4.2) Include waveforms\figures\tables to justify your design.

(4.3) Report (5%).

(4.4) PPT (5%).

*Note\* Attach the Spec. descriptions to your report.*