Ispit vježba

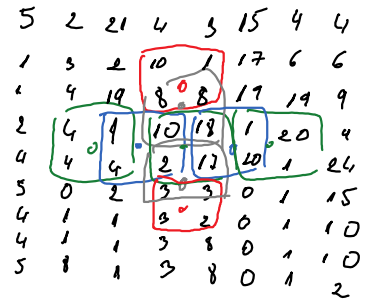
30. siječnja 2016. 19:21

2 I 2012/2013 TRENUTNI

1. ORT
MAD

20	20
1	20

REFERENTNI BLOK



3) $\frac{1}{4}(19+10+3+8)$

$\frac{1}{4}(2+19+16+0)$

MAD_0

4) $MAD_0 = \frac{1}{4}(10+2+1+3) = 4$

$MAD_1 = \frac{1}{4}(10+19+3+16)$

$MAD_2 = \frac{1}{4}(19+0+19+19)$

2) $MAD_0 = \frac{1}{4}(10+19+7+12)$

$MAD_1 = \frac{1}{4}(12+17+2+8)$

MAD_2

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12) $t = 10s$

$t' = 6s$

$N = 4$

$U = \frac{t}{t'}$ $\quad U = 1,67$

$P = \frac{T}{Q}$ $\quad U = \frac{1}{(1-p)+\frac{p}{N}}$

$\frac{10}{6} = \frac{1}{1-p+\frac{p}{4}} = \frac{4}{4-3p}$

$5 = \frac{10}{4-3p} \Rightarrow 20-15p = 10$

$p = \frac{8}{15} = 0,53$

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13) $N = 2000$ podataka

$t_{oz} = 120\,ns$

obrada 1 podatka $t_{pod} = 2\,ns$

$t_{spr} = 150\,ns$

$t_{oč} = 120\,ns$

$t_o = N \cdot t_{pod} = 4000\,ns$

$t_U = t_{oč} + t_o + t_{spr} = 4270\,ns$

$P(\text{obrada}) = \frac{4000}{4270} = 0,9367$

1) $N = 1$

$t_U = 4270$, $p = 0,9367$

$U = \frac{1}{\quad} = 1$

2) $N = 2$

$t_U = 4270$, $p = 0,9367$

$U = \frac{1}{\quad} = 1,87$

3) $N = 4$

$E_U = 4270$ $p = 0{,}9367$

$U = \frac{1}{1-p+\frac{p}{N}} = 1$ $\quad U = \frac{1}{1-p+\frac{p}{2}} = 1{,}88$

$E = \frac{U}{N} = 1$ $\quad E = \frac{U}{N} = 0{,}94$

(5)

$p_1 = 35\%$ $\quad N = 5$

$p_2 = 65\%$ $\quad N = 3$

$U_1 = \frac{1}{1-p+\frac{p}{N}} = 1{,}381$

$U_2 = \frac{1}{1-0{,}65+\frac{0{,}65}{3}} = 1{,}703$ $\quad O_2!$

6.

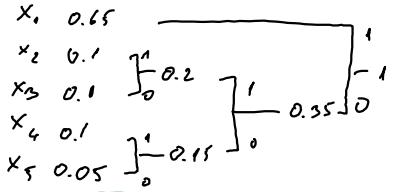
```c
#include <xparameters.h>
#include <xiic.h>

#define I2C_CAMERA 0x40

void main (void){
    u8 readBuffer[1] = {0x00};
    u8 writeBuffer[1] = {0x00};
    u8 realWriteBuffer[2] = {0x00, 0x00};

    XIic i2cInstance;
    XIic_Config *cfgPointer;

    cfgPointer = XIic_LookupConfig(XPAR_CAMERA_IIC_DEVICE_ID); // Ova konstanta je nekakav njegov interni identifikator I2C IP-a

    XIic_CfgInitialize (&i2cInstance, cfgPointer , cfgPointer->BaseAddress);
    XIic_SetAddress (&i2cInstance, XII_ADDR_TO_SEND_TYPE , I2C_CAMERA);

    XIic_Start(&i2cInstance);

    writeBuffer[0] = 0x14;
    Xiic_MasterSend(&i2cInstance, writeBuffer, 1); // Pišemo adresu registra, prazan ciklus pisanja

    XIic_MasterRecv(&i2cInstance, readBuffer, 1); // Dohvaćamo s te adrese
    if(readBuffer[0] & 0x20){ // 176 x 144
        realWriteBuffer[1] = 0x10; // AEC ADRESA
        realWriteBuffer[0] = 0x56; // AEC = 0x56;
        Xiic_MasterSend(&i2cInstance, realWriteBuffer, 2);
    } else { // 352 x 258
        realWriteBuffer[1] = 0x10; // AEC ADRESA
        realWriteBuffer[0] = 0x42; // AEC = 0x56;
        Xiic_MasterSend(&i2cInstance, realWriteBuffer, 2);

        writeBuffer[0] = 0x11;
        Xiic_MasterSend(&i2cInstance, writeBuffer, 1);

        XIic_MasterRecv(&i2cInstance, readBuffer, 1);
        readBuffer[0] &= 0x1F;
        readBuffer[0] /= 2; // Takt /= 2

        realWriteBuffer[1] = 0x11;
        realWriteBuffer[0] = readBuffer[0];
        Xiic_MasterSend(&i2cInstance, realWriteBuffer, 2);
    }

    XIic_Stop(&iic);
    while(1){
    }
}
```

HUFFMAN

$p(x_1) = 0{,}65$

$p(x_2) = p(x_3) = p(x_4) = 0{,}1$

$p(x_5) = 0{,}05$



x_1	1
x_2	011
x_3	010
x_4	001
x_5	000

AXI

Advanced eXtensible interface

- dio AMBA protokola

PS - PL ports (MAS 2-1/61)

AXI high performance slave ports (HP0 - HP3)

- 32 & 64 bit
- OCM i DDR pristup
- AXI FIFO sucelje (AF1)

AXI general purpouse ports (GP0 - GP1)

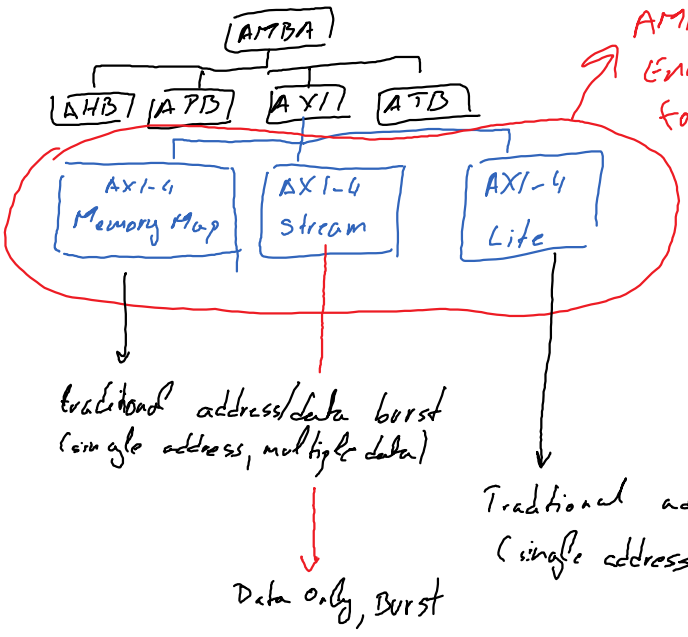
- dva „master" PS - PL
- dva „slave" PL - PS
- 32 bit

'''AXI''', the third generation of AMBA interface defined in the AMBA 3 specification, is targeted at high performance, high clock frequency system designs and includes features that make it suitable for high speed sub-micrometer interconnect:

* separate address/control and data phases
* support for unaligned data transfers using byte strobes
* burst based transactions with only start address issued
* issuing of multiple outstanding addresses with out of order responses
* easy addition of register stages to provide timing closure.

WIKIPEDIA

→ ZA FPGA (MAS 2-1/64)



IPP - integrated performance primitives (MAS 3-1/45)

Format zapisa - raspored komponenti slikovnih podataka

Channel data Layout - kanalni raspored (oznaka _C)

Planar data Layout - planarni raspored (oznaka _P)

_C3

RGB	RGB	RGB	RGB	RGB	RGB
RGB	RGB	RGB	RGB	RGB	RGB
RGB	RGB	RGB	RGB	RGB	RGB
RGB	RGB	RGB	RGB	RGB	RGB
RGB	RGB	RGB	RGB	RGB	RGB
RGB	RGB	RGB	RGB	RGB	RGB

_P3