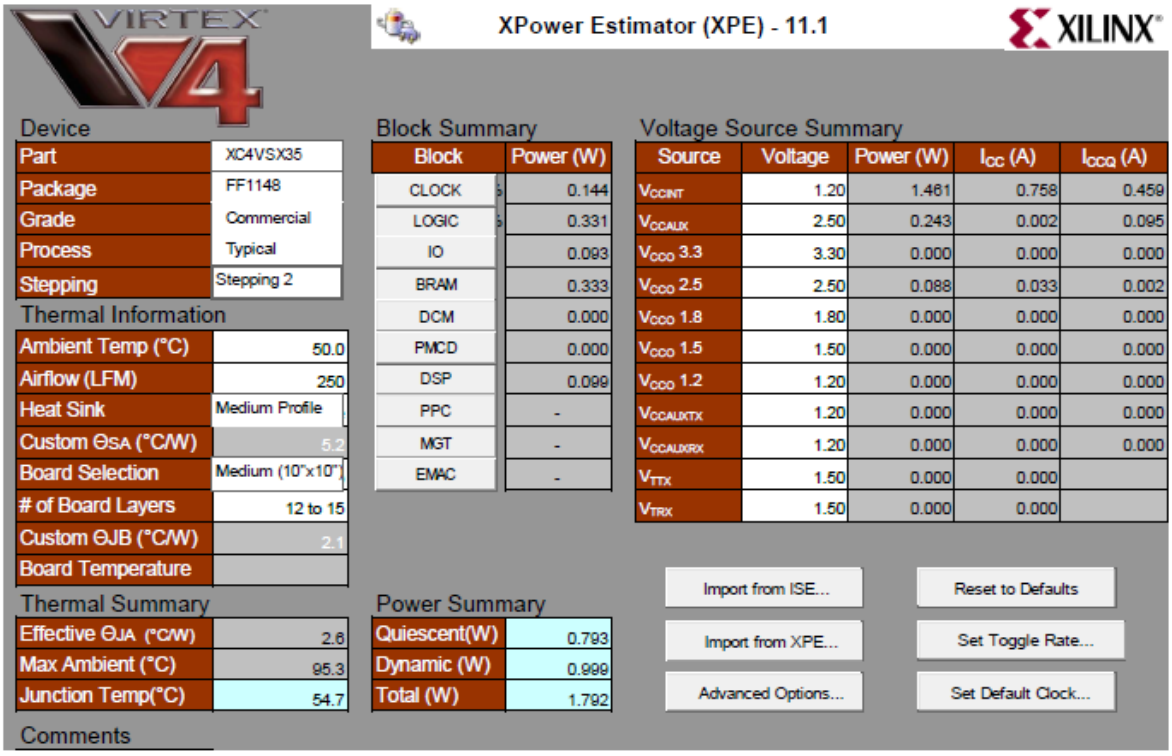
POWER ESTIMATES FO HETEROGENEOUS SYSTEM

a) FPGA implementation Of face detection



XPower Estimator (XPE) - 11.1

XILINX

Device

Part	XC4VSX35
Package	FF1148
Grade	Commercial
Process	Typical
Stepping	Stepping 2

Thermal Information

Ambient Temp (°C)	50.0
Airflow (LFM)	250
Heat Sink	Medium Profile
Custom ΘSA (°C/W)	5.2
Board Selection	Medium (10"x10")
# of Board Layers	12 to 15
Custom ΘJB (°C/W)	2.1
Board Temperature	

Thermal Summary

Effective ΘJA (°C/W)	2.6
Max Ambient (°C)	95.3
Junction Temp(°C)	54.7

Comments

Block Summary

Block	Power (W)
CLOCK	0.144
LOGIC	0.331
IO	0.093
BRAM	0.333
DCM	0.000
PMCD	0.000
DSP	0.099
PPC	-
MGT	-
EMAC	-

Power Summary

Quiescent(W)	0.793
Dynamic (W)	0.999
Total (W)	1.792

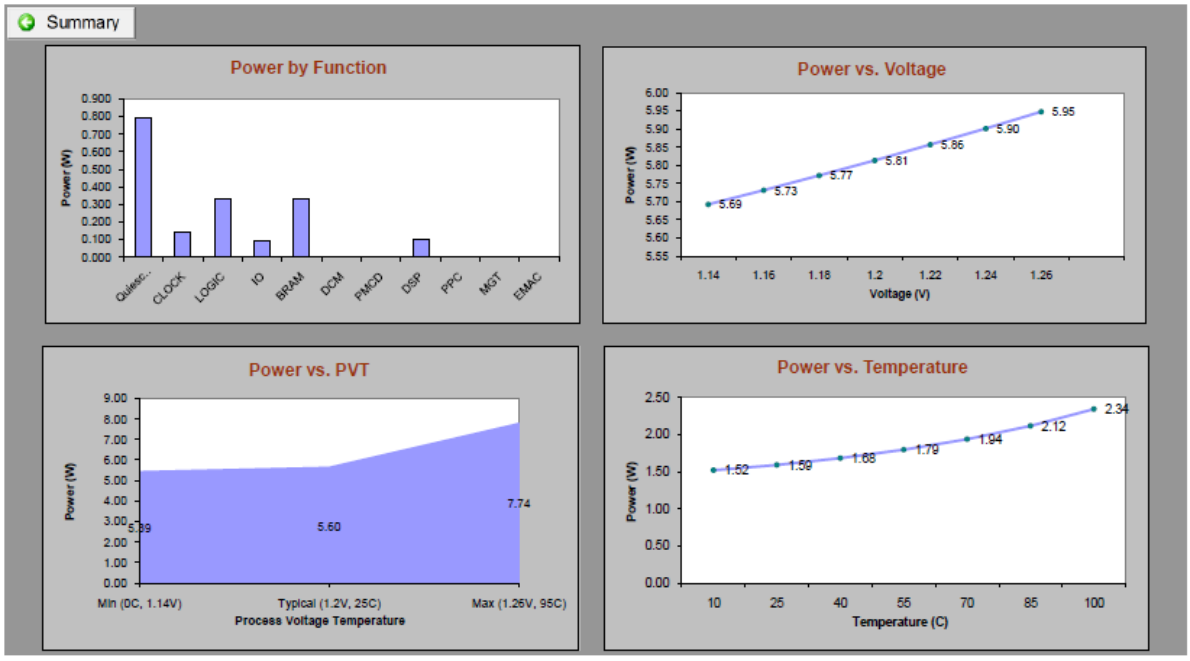
Voltage Source Summary

Source	Voltage	Power (W)	I_{CC} (A)	I_{CCQ} (A)
V_{CCINT}	1.20	1.461	0.758	0.459
V_{CCAUX}	2.50	0.243	0.002	0.095
V_{CCO} 3.3	3.30	0.000	0.000	0.000
V_{CCO} 2.5	2.50	0.088	0.033	0.002
V_{CCO} 1.8	1.80	0.000	0.000	0.000
V_{CCO} 1.5	1.50	0.000	0.000	0.000
V_{CCO} 1.2	1.20	0.000	0.000	0.000
$V_{CCAUXTX}$	1.20	0.000	0.000	0.000
$V_{CCAUXRX}$	1.20	0.000	0.000	0.000
V_{TTX}	1.50	0.000	0.000	
V_{TRX}	1.50	0.000	0.000	

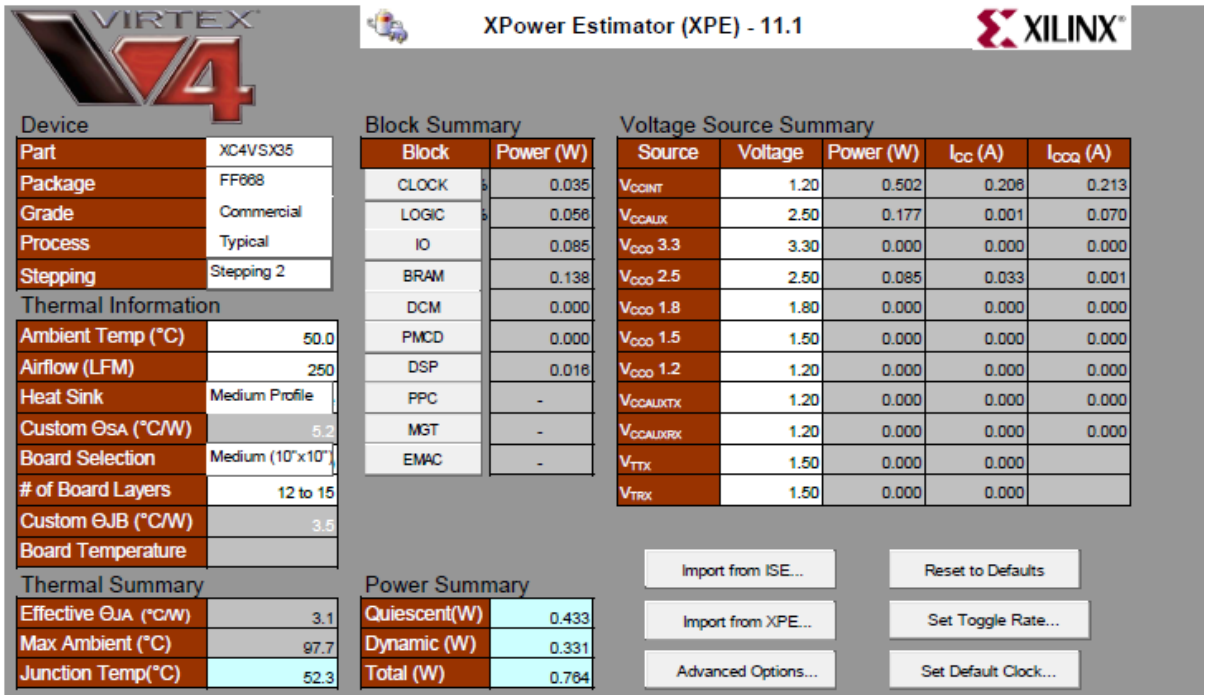
Import from ISE... | Reset to Defaults

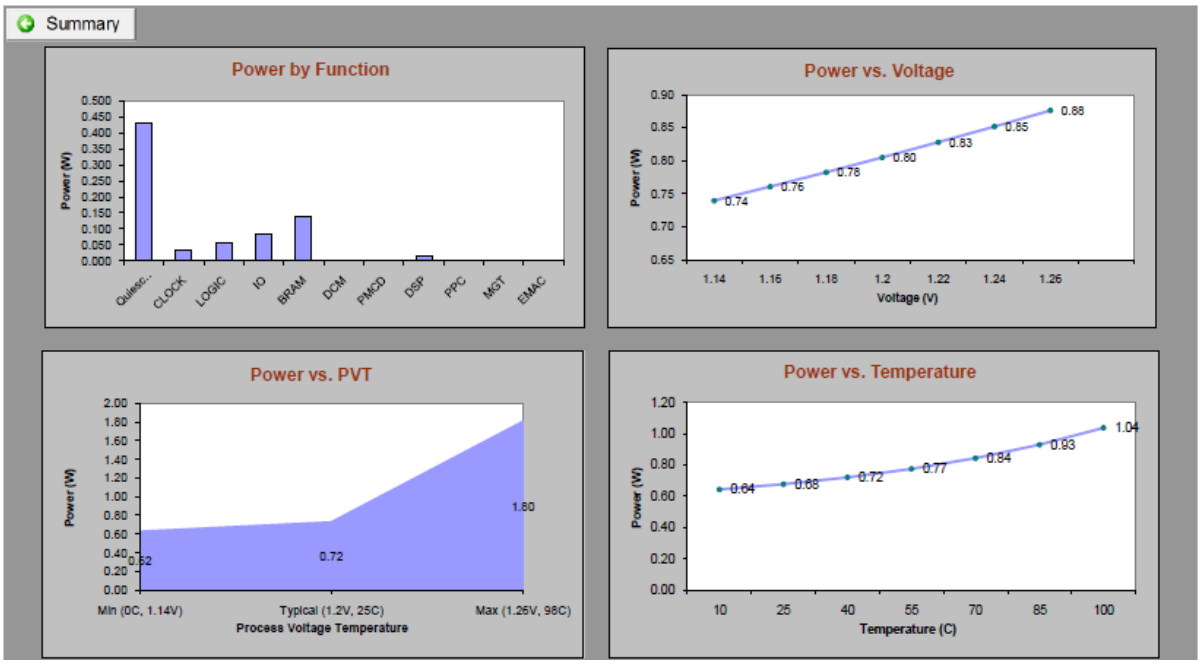
Import from XPE... | Set Toggle Rate...

Advanced Options... | Set Default Clock...



b) FPGA implementation Of Skintone Detection





c) *DSP implementation Of Skintone Detection*

Voltage: 1.4

Boot Peripheral Selection: HPI32

Temp: 25

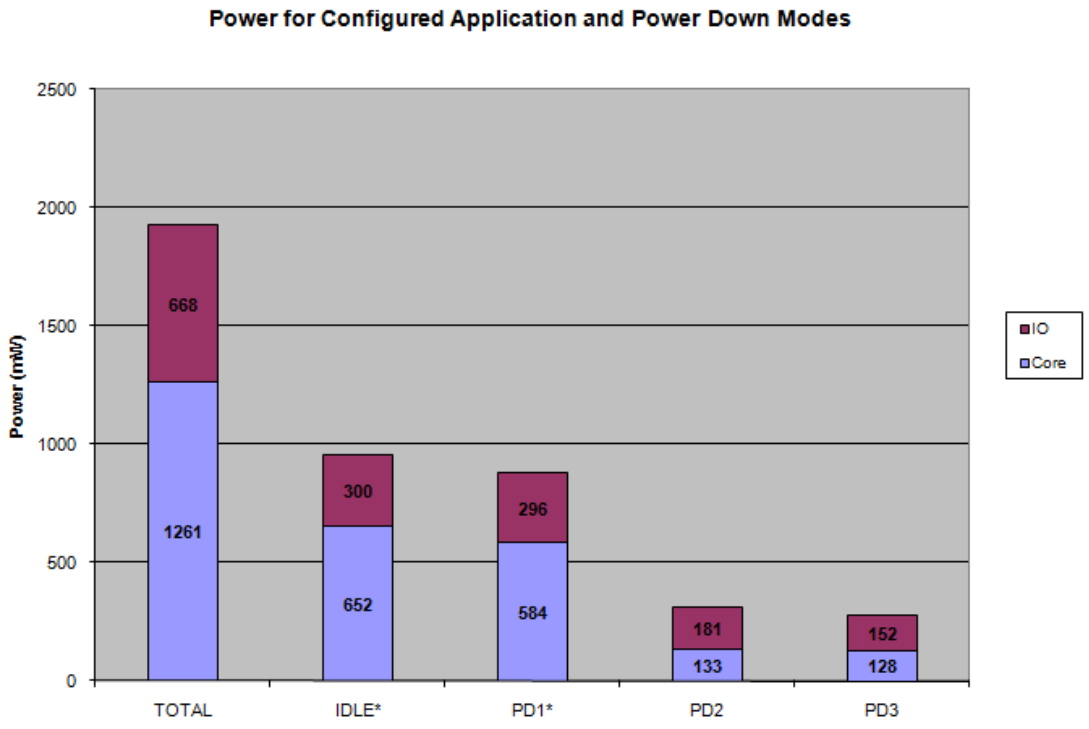
	Freq (MHz)	% Utilization	% Writes	Bits	% Switch	Serializers	Trace (in.)
CPU	50	100					
EMIF	133	50	50	64	50		4.5
AECLKOUT2	0	0					4.5
CLKOUT4	13	0					4.5
CLKOUT6	8	0					4.5
McBSP0	2	100			50		4
McBSP1	2	100			50		4
McASP0	0	0			50	0	3
Timer0	50	100					4
Timer1	50	100					4
Timer2	0	0					4
I2C0	0	0			50		4
VP0	0	0		0	50		3
VP1	0	0		0	50		3
VP2	0	0		0	50		3
EMAC*	0	0			50		3
PCI	0	0	0	32	50		3
HPI	0	0	0	32	50		3

* EMAC frequency is measured in Mbps

Basic Configurations

Example

Results

	Core (mW)	I/O (mW)	Total (mW)
CPU	73		73
EMIF	32	432	465
AECLKOUT2		0	0
CLKOUT4		0	0
CLKOUT6		0	0
McBSP0	0	1	1
McBSP1	0	1	1
McASP0	0	0	0
Timer0	1	29	30
Timer1	1	29	30
Timer2	0	0	0
I2C0	0	0	0
VP0	0	0	0
VP1	0	0	0
VP2	0	0	0
EMAC	0	0	0
PCI	0	0	0
HPI	0	0	0
Activity	107	491	599
Baseline	173	154	327
TOTAL	281	645	926
TOTAL (mA)	200	196	396
IDLE*	137	255	392
PD1*	132	253	385
PD2	129	154	283
PD3	128	152	280

* Includes Idle EMIF