FUNCTION ANALYSIS REPORT

OMAP5432

—— Application Processor

Science Vision

Visualized Fact Utmost Science

Important notice regarding the use of this report:

Published: Jul 25, 2013

Science Vision
Visualized Fact Utmost Science

Part No.	OMAP5432
Date	2013-07-25

Table of Contents

Contents

Chapter 1

PROJECT OVERVIEW

1. Project Overview

1.1 Chip Introduction

OMAP™ 5 processors are designed to support high performance applications within a low power envelope, preventing the need for fans.

Feature:

- Multicore ARM® Cortex™ processors
- Two ARM Cortex-A15 MPCore processors capable of speeds up to 1.7 GHz
- Two ARM Cortex-M4 processors for low-power offload and real-time responsiveness
- Multi-core POWERVR™ SGX544-MPx graphics accelerators
- Dedicated TI 2D BitBlt graphics accelerator
- IVA-HD hardware accelerators enable full HD, multi-standard video encode/decode as well as stereoscopic 3D (S3D)
- Faster, higher-quality image and video capture

Application:

- Mobile computing devices and consumer products

1.2 Device Summary

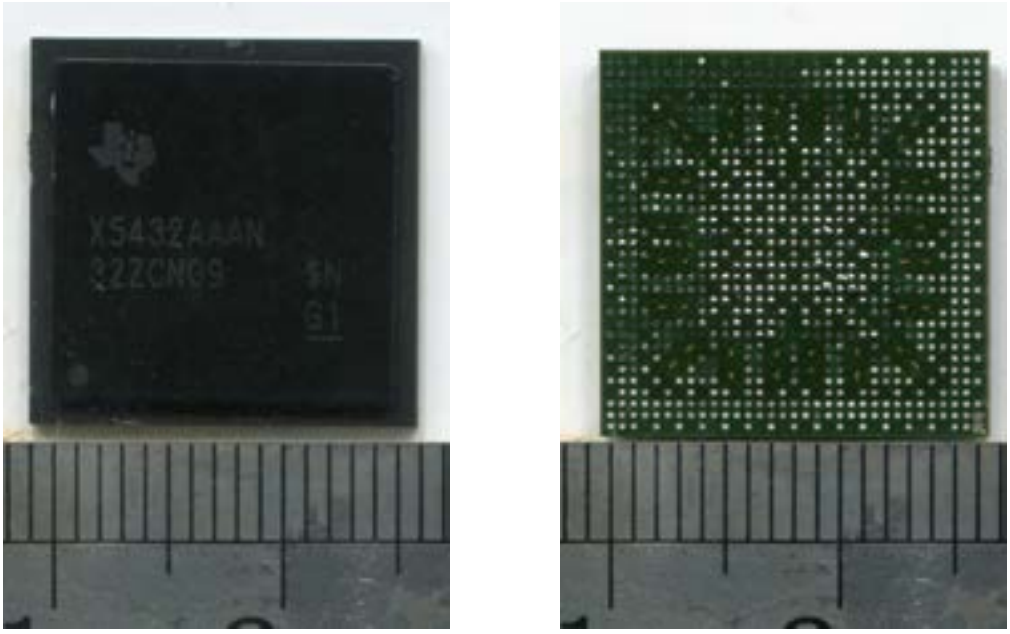
Item	Content
Part Number / Project Number	OMAP5432 / 1130601
Manufacture	TI
Device Type	Processor
Package Marking	TI; X5432AAAN; 32ZCN09; $N; G1
Package Type	17mm × 17mm BGA, 754 Ball
Die Marking	
Die Size	9.1 mm × 8.8 mm = 80.08mm^2
Number of Metal Layers	9
Number of Poly Layers	1
Process Type	CMOS
Interconnect Level (Width/Pitch(um))	
Process Generation	28 nm
Feature Measure to Determine Process Generation	Gate Length
Transistor Gate Length	28 nm

Chapter 2

DEVICE IDENTIFICATION

2. DEVICE IDENTIFICATION

2.1 Package Photo



Top View

Bottom View

Figure 2.1 Package Photo

2.2 Die Marking

Figure 2.2 Die Markings

2.3 Die Photo

Figure 2.3.1 Poly Image

2.4 Minimum Pitch of Pads

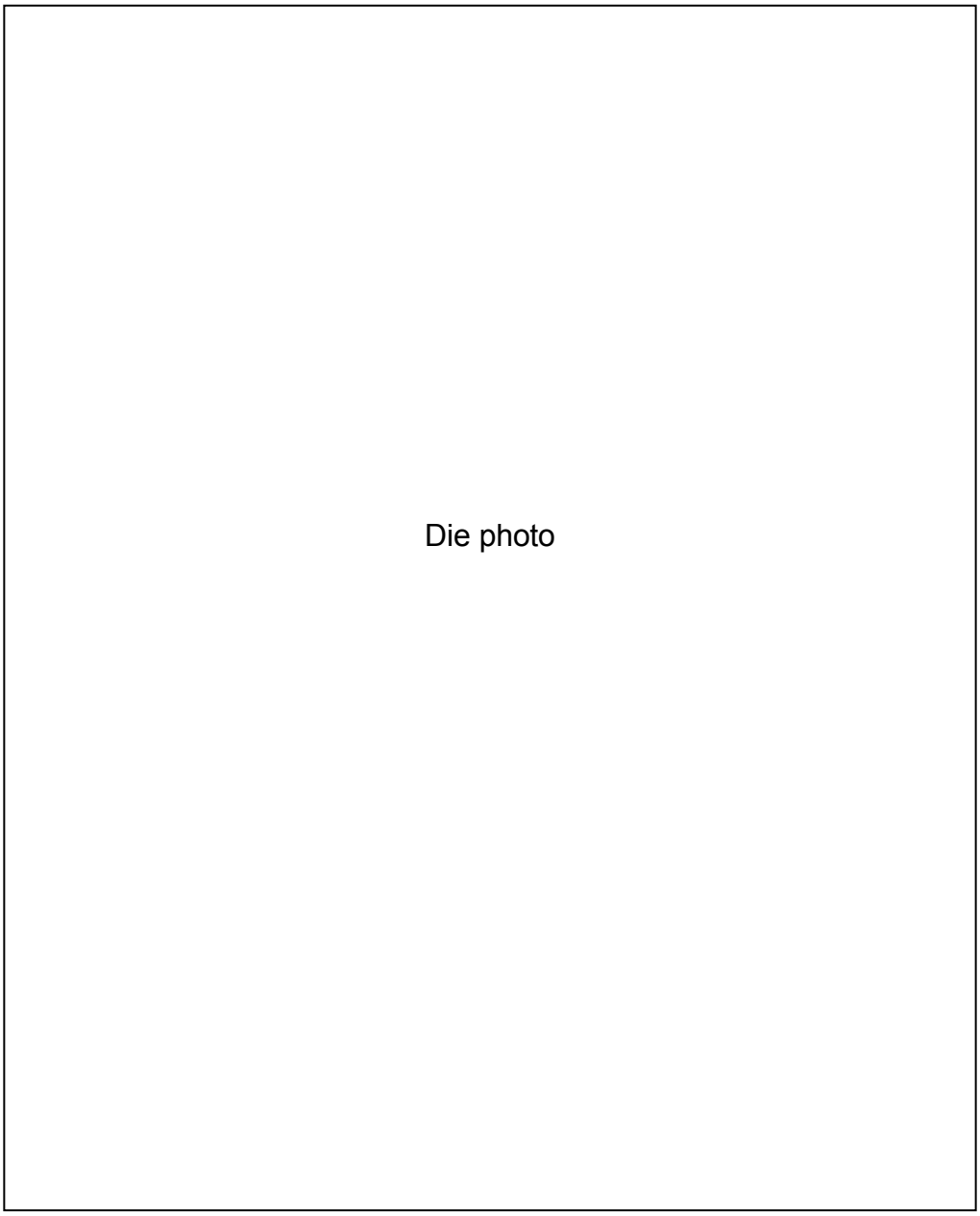


Figure 2.4 Minimum Pitch of Pads

Chapter 3

PROCESS ANALYSIS

3. Process Analysis

3.1 General Layers Structure

Figure 3.1 General Layers Structure

3.2 Metal Layers Minimun Width and Pitch

Item	Content
Metal 1 Minimun Width	
Metal 1 Minimun Pitch	
Metal 2 Minimun Width	
Metal 2 Minimun Pitch	
Metal 3 Minimun Width	
Metal 3 Minimun Pitch	
Metal 4 Minimun Width	
Metal 4 Minimun Pitch	
Metal 5 Minimun Width	
Metal 5 Minimun Pitch	
Metal 6 Minimun Width	
Metal 6 Minimun Pitch	
Metal 7 Minimun Width	
Metal 7 Minimun Pitch	
Metal 8 Minimun Width	
Metal 8 Minimun Pitch	
Metal 9 Minimun Width	
Metal 9 Minimun Pitch	

3.3 Minimun Contacted Pitch and Gate Length Transistor

Item	Content
Minimun Contacted Pitch	62 nm
Gate Length Transistor	28 nm

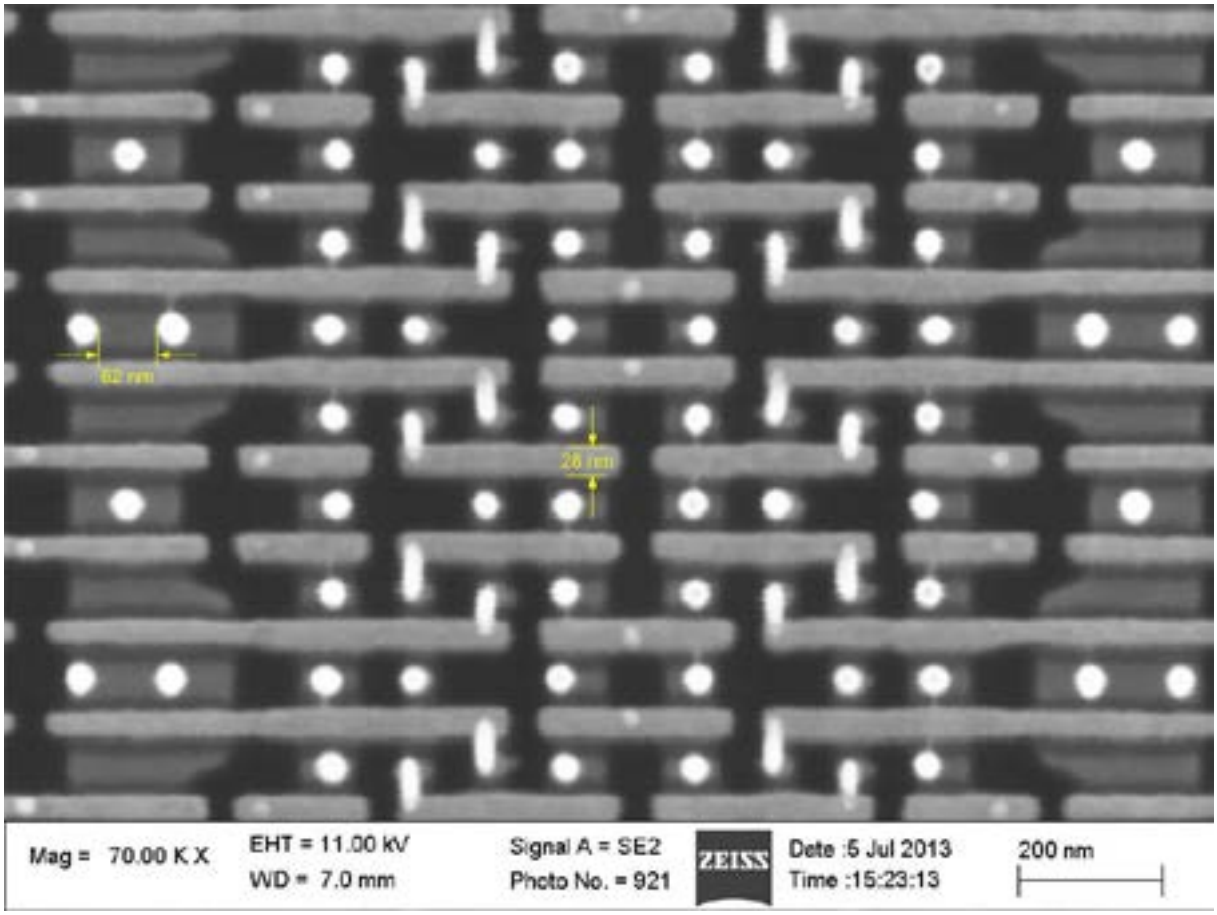


Figure 3.2 Minimun Contacted Pitch and Gate Length Transistor

Chapter 4

FUNCTIONAL BLOCK ANALYSIS

4. Functional Block Analysis
4.1 Functional Block Overview

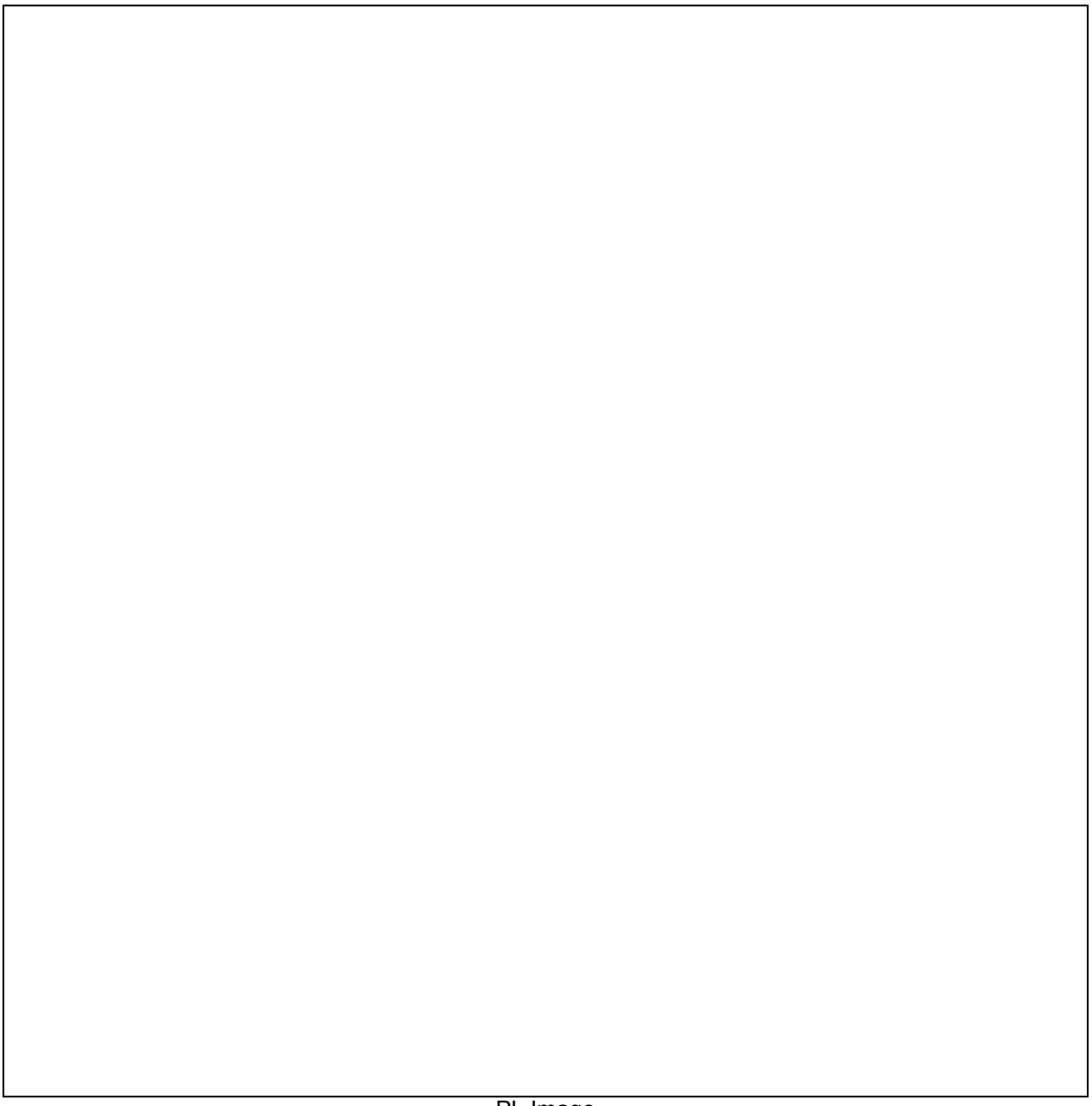


Figure 4.1 Functional Block Overview

4.2 Functional Block Summary

Item	Content
ARM Cortex-A15 MPCore Size	X.XX mm × X.XX mm = XX.XXmm^2
ARM Cortex-M4 Core Size	X.XX mm × X.XX mm = XX.XXmm^2

Chapter 5

SRAM MAP

5. SRAM Map

5.1 SRAM Distribution

Figure 5.1 SRAM Distribution

XXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

5.2 6T SRAM Map

5.2.1 6T SRAM Cell Size

Item	Content
6T SRAM Cell Size	

Figure 5.2.1 6T SRAM Cell Size

5.2.2 6T SRAM Cell Analysis

Figure 5.2.2 6T SRAM Cell Schematic and Topographical Analysis

5.3 8T SRAM Map

5.3.1 8T SRAM Cell Size

Item	Content
8T SRAM Cell Size	

Figure 5.3.1 8T SRAM Cell Size

5.3.2 8T SRAM Cell Analysis

Figure 5.3.2 8T SRAM Cell Schematic and Topographical Analysis

5.4 SRAM Map of L1/L2 Cache

Figure 5.4.1 L1/L2 Cache Distribution of ARM Cortex-A15

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.

5.4.1 6T/8T SRAM Distribution of L1/L2 Cache

Figure 5.4.1 6T/8T SRAM Distribution of L1/L2 Cache

5.4.2 L2 Cache 6T SRAM Unit

5.4.2.1 L2 Cache 6T SRAM Unit Size

Figure 5.4.2.1 L2 Cache 6T SRAM Unit Size

5.4.2.2 L2 Cache 6T SRAM Unit Capacity

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXX.
XXXXXXXXXXXX
XXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

5.4.3 L1 Cache 8T SRAM Unit

5.4.3.1 L1 Cache 8T SRAM Unit Size

Figure 5.4.3.1 L1 Cache 8T SRAM Unit Size

5.4.3.2 L1 Cache 8T SRAM Unit Capacity

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXX.
XXXXXXXXXXXX
XXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

5.4.4 L1 Cache 6T SRAM Unit

5.4.4.1 L1 Cache 6T SRAM Unit Size

Figure 5.4.4.1 L1 Cache 6T SRAM Unit Size

5.4.4.2 L1 Cache 6T SRAM Unit Capacity

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.
XXXXXXXXXXXXX
XXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Science Vision
Visualized Fact Utmost Science

> > Contact us

Adress: 128 Xiangyin Rd, Unit 12, Suite 101,
Shanghai, P.R. China (200433)
Tel: 86 21 5406 5080 Fax: 86 21 6142 5728
Email: Sales@Sciencevision.cn
Websit: www.sciencevision.cn