Accurate Point Cloud Generation for 3D Machine Vision Applications using DLP® Technology

TI Designs

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Description

The 3D Machine Vision reference design employs Texas Instruments DLP Software Development Kit (SDK) allowing developers to easily construct 3D point clouds by integrating this digital micromirror device (DMD) technology with cameras, sensors, motion or other peripherals. The highly differentiated 3D Machine Vision systems utilizes the DLP® LightCrafter™ 4500 evaluation module (EVM), featuring the DLP® 0.45" WXGA chipset, and enables flexible control of high-resolution, accurate patterns for industrial, medical, and security applications.

Features

- Integrated x86 and ARM support for DLP chipsets to enable fast and programmable patterns
- Integrated camera support for synchronized captures
- Projector and camera calibration routine
- Structured Rights algorithms for disparity/ smooth, depth map and point cloud generation
- API Documentation
- Full access to application and source code

View available purchase options for designs kits, evaluation modules and/or the bill of materials.

$1299.00(USD)

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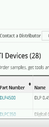
Schematic/Block Diagram

Quickly understand overall system functionality.



Download Schematic

Test Data

Get results faster with test and simulation data that's been verified.

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Design Files

Download ready-to-use system files to speed your design process. Get Viewer.

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Bill of Materials (BOM)

Find the complete Bill of components in this reference design.

Download BOM

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Part Number	Buy from Texas Instruments or Third Party	Buy from Authorized Distributor	Status
DLPLCR4500EVM DLP® LIGHTCRAFTER™ 4500	$1299.00(USD) Out of stock Available for backorder	Pricing may vary.	ACTIVE
	Buy from TI	Buy from distributor	

Contact a distributor: Calorate Go

TI Devices (28)

Order samples, get tools and find more information on the TI products in this reference design.

Part Number	Name	Product Family	Sample & Buy	Design Kits & Evaluation Modules
DLP4500	DLP 0.45 WXGA DMD	Advanced Light Control	Sample & Buy	View Design Kits & Evaluation Modules
DLPC900	Digital Controller for the DLP4500 DMD	Advanced Light Control	Buy	View Design Kits & Evaluation

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CAD/CAE symbols

Part #	Package	Files	CAD File	Pads	STEP Model	Legal
MA03202	SOIC (D) | 16		Download		Download	
	SSOP (DB) | 16		Download		-	
	SOIC (DW) | 16		Download		Download	
	TSSOP (PW) | 16		Download		Download	
SN74AHC1G09	SOT (DBV) | 5		Download		Download	
	SOT (DCK) | 5		Download		Download	
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	DSBGA (YZP) | 6		Download		-	
	DSBGA (YZT) | 6		Download		-	
SN74AUC2T45	SSOP (DCT) | 8		Download		-	
	VSSOP (DCU) | 8		Download		-	
	DSBGA (YZP) | 8		Download		-	
SN74AVC32T245	BGA MICROSTAR JUNIOR (GKE) | 96		Download		-	
	BGA MICROSTAR JUNIOR (GKF) | 96		Download		-	
	BGA MICROSTAR JUNIOR (GRU) | 96		Download		-	
SN74AVC8T245	TVSOP (DGV) | 24		Download		-	
	TSSOP (PW) | 24		Download		Download	
	VQFN (RHL) | 24		Download		-	
SN74HC21	SOIC (D) | 14		Download		Download	
	PDIP (N) | 14		Download		-	
	SOP (NS) | 14		Download		-	
	TSSOP (PW) | 14		Download		Download	
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	SOT (DBV) | 5		Download		Download	
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	SOT (DRL) | 5		Download		-	
	DSBGA (YZP) | 5		Download		-	
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	SOT (DCK) | 5		Download		Download	
	SOT (DRL) | 5		Download		-	
	DSBGA (YZP) | 5		Download		-	
	USON (DBV) | 6		Download		-	
	USON (DSF) | 6		Download		-	
SN74LVC1G17	DSBGA (YZV) | 4		Download		-	
	DSBGA (YZV) | 4		Download		-	
	SOT (DBV) | 5		Download		Download	
	SOT (DCK) | 5		Download		Download	
	SOT (DRL) | 5		Download		-	
	USON (DBV) | 6		Download		-	
	USON (DSF) | 6		Download		-	
SN74LVC2G17	SSOP (DCT) | 8		Download		-	
	VSSOP (DCU) | 8		Download		-	
	DSBGA (YZP) | 8		Download		-	
BYH421	VSSOP (VZH) | 100		Download		Download	
TL1112A	SOIC (D) | 8		Download		Download	
	PDIP (P) | 8		Download		Download	
TPD2E001	SOT (DZG) | 4		Download		-	
	SOT (DRL) | 5		Download		-	
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	DRB(S) | 5		Download		-	
	DSBGA (YZQ) | 5		Download		-	
TPS79118	SOT (DCK) | 5		Download		Download	
TS3USB221	USON (DRC) | 10		Download		-	
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TS3DV332	SSOP (DCT) | 8		Download		-	
	VSSOP (DCU) | 8		Download		-	
	TSSOP (PW) | 8		Download		-	
	DSBGA (YZP) | 8		Download		-	

Texas Instruments and Accelerated Designs Inc. have collaborated together to provide TI customers with schematic symbols and PCB layout footprints for TI products.

Step 1: Download and install the Ultra Librarian software ZIP, 62MB

Step 2: Download the Symbol and Footprint .bxl file.

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Technical Documents

User Guides (2)

Title	Abstract	Type	Size (KB)	Date	Views
TIDA-00254 Test Results		PDF	1119	25 Jul 2014	4,778
TIDA-00254 User's Guide		PDF	24361	30 May 2014	344

Design Files (3)

Title	Abstract	Type	Size (KB)	Date	Views
TIDA-00254 BOM		PDF	24	30 Jul 2014	168
TIDA-00254 Camera Trigger Cable Assembly		PDF	111	25 Jul 2014	134
TIDA-00254 Schematic		PDF	176	25 Jul 2014	318

More Literature (1)

Title	Abstract	Type	Size (KB)	Date	Views
DLP Point Cloud Generation and 3D Machine Vision Reference Design		PDF	521	22 Jul 2014	37

Related Tools & Software

Design Kits & Evaluation Modules (1)

Name	Part Number	Tool Type
DLP® LightCrafter™ 4500	DLPLCR4500EVM	Evaluation Modules & Boards

Software (1)

- TIDA-00254 Windows Installer
  ZIP, 16039 KB | 192 views, 25 Jul 2014

Support & Community

TI E2E™ community

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Wikis

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Videos

Introduction to DLP® 3D Machine Vision Reference Design

Construct a 3D point cloud with the DLP® LightCrafter™ 4500 evaluation module and the DLP® 0.45" WXGA machine vision. This new design empowers developers a framework to construct 3D point clouds via a machine vision.

Posted: 23-Aug-2014
Duration: 2:39
Views: 1,111
Tags: 3d machine vision, 3d point clouds
View the Reference Design

Related Videos

Introduction to DLP® 3D Machine Vision Reference Design

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