

# **Installing ObjectVideo OnBoard With the TMS320DM6437 EVM**

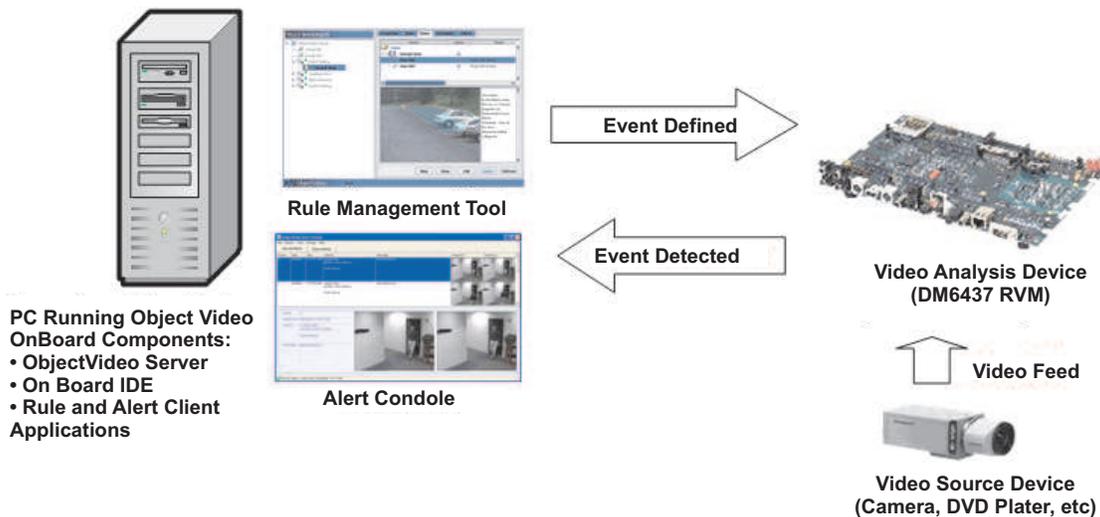
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### ABSTRACT

ObjectVideo® OnBoard™ is a software product that monitors video feeds for events, and alerts you in real-time as events occur. ObjectVideo OnBoard technology performs much of its video analysis on intelligent devices, such as DSPs. This document describes how to deploy ObjectVideo OnBoard with the Texas Instruments TMS320DM6437 (DM6437) evaluation module (EVM), which is based on DaVinci™ technology.

The following sections include a requirements list, an overview of how to interconnect the hardware, instructions for installing required ObjectVideo on the DM6437 EVM, and instructions for installing ObjectVideo OnBoard software on a PC. Once all software is running and system components are properly connected, use the ObjectVideo software to detect events in a video feed.

The following diagram illustrates the interaction of ObjectVideo OnBoard and the DM6437 EVM system components.



**Figure 1. ObjectVideo OnBoard Deployed With the DM6437 EVM**

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## 1 Requirements

Before beginning the installation, make sure you have the following:

- TMS320DM6437 EVM board
- Cabling to connect the DM6437 to external devices (see [Section 2](#) of this document).
- Texas Instruments Code Composer Studio™ IDE software, which comes with the DM6437 EVM. Use the Quick Start Guide that comes with this software to install the entire package, including the FlashBurn utility.
- Texas Instruments Digital Video Software Development Kit (DVSDK) CD, which comes with the DM6437 EVM.
- You will receive the following files from your distributor after they obtain the MAC address, written on the under-side of the DM6437, and the IP address that will be assigned to the configured DM6437 board.
  - BootLoader.hex
  - FlashBurnBinary.out
  - OV\_MPEG\_TI\_EVAL\_Demo.bin
  - Installing ObjectVideo OnBoard With the TMS320DM6437 EVM ([SPRAAT0](#)) (this document)
- Video source device (e.g., camera or DVD player).
- ObjectVideo OnBoard software, version 5.0, which is available from Texas Instruments. The ObjectVideo OnBoard Demo CD includes a folder for ObjectVideo OnBoard installation software. The ObjectVideo OnBoard software includes the ObjectVideo Server, the ObjectVideo Intelligent Sensor Engine (ISE), and the Rule and Alert Client Applications.
- Computer(s) to run the ObjectVideo software. The computer running the ObjectVideo Server, ISE, and Rule and Alert Client Applications should be running Microsoft® Windows® XP Professional (Service Pack 2) or Windows Server® 2003, Standard Edition (Service Pack 1) or R2.

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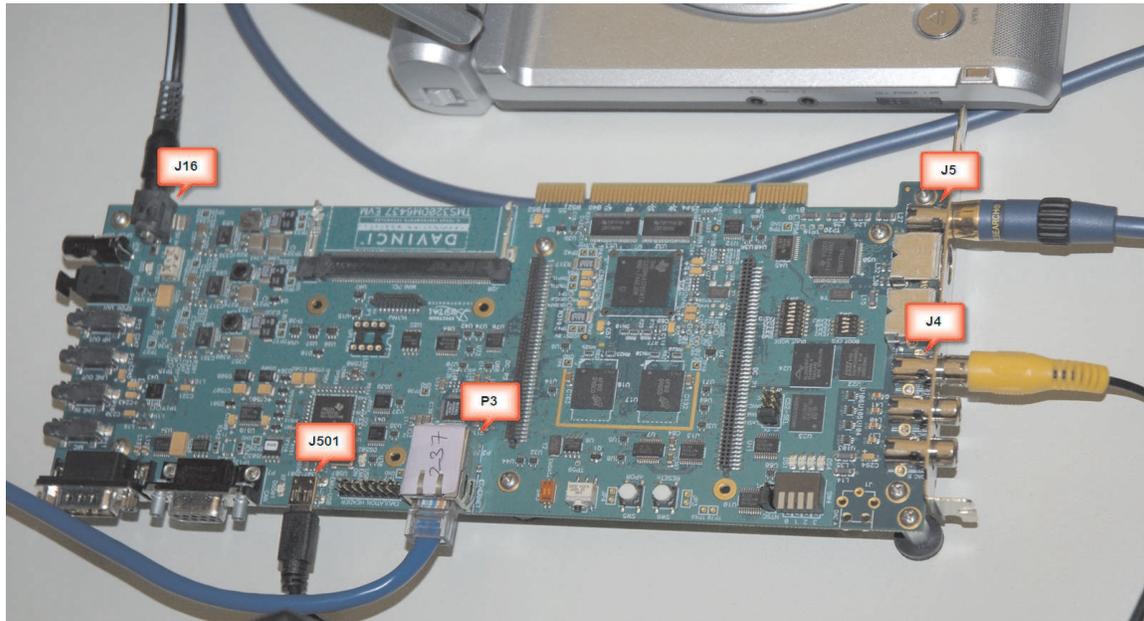
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## 2 Connect Devices

Figure 2 illustrates how to connect the system components.



**Figure 2. Close-Up on DM6437 Connections**

Follow these steps to connect the system components.

1. Connect the universal serial bus (USB) cable that comes with the DM6437 EVM from the board's J501 connector to the USB port of the computer, where Code Composer Studio is installed.
2. Connect the power supply that comes with the DM6437 EVM to the board's J16 connector.
3. Connect a cable from the DM6437's Video In (J5) connector to the Video Out of the camera or DVD player.
4. Connect a cable from the DM6437's Video Out (J4) connector to the Video In of a video display device, such as an LCD monitor or TV.
5. Connect an Ethernet crossover cable from the DM6437's P3 connector to a network port on the computer, running the ObjectVideo software. Alternatively, this connection can be via a switch/hub.

## 3 Transfer Software to the DM6437

Once the ObjectVideo software is installed and running and all devices are interconnected, perform the following steps.

1. Open the program, *6437EVM CCStudio v3.3*, on the computer where Code Composer Studio is installed.
2. Click *Debug* → *Connect* to connect to the DM6437.
3. Click *Start* → *Programs* → *Software Design Solutions* → *FlashBurn DSK* → *FlashBurn* to open the FlashBurn utility.
4. Select *Create a new FlashBurn configuration* and click *OK*.
5. On the *FlashBurn-DSK* (FB Config) screen, select *EVM-DM6437 (cpu\_0)* as the Connection.
6. Click *Connect*.

7. In the *FBTC Program File* field, browse to the following file:  
*C:\dvsdk\_1\_01\_00\_15\flashburn\_files\FBTCEVMDM6437.out* file.  
 Note that the DVSDK directory name may vary according to version number (e.g., dvsdk\_1\_00\_00\_19, etc.).
8. Click *Download FBTC*.
9. In the *File to Burn of program flash memory* field, browse to the *BootLoader.hex* file.
10. Click *Erase Flash* to erase the flash memory. It may take a couple minutes for this process to be completed.
11. Click *Program Flash* to program the flash memory using *BootLoader.hex*.
12. Click *Close*.
13. Click *File* → *Load Program* and browse to *FlashBurnBinary.out*.
14. Click *Debug* → *Run*. After roughly 15 minutes, a *Done* message appears, meaning the demo binary is burned in the Flash.
15. Close Code Composer Studio.
16. Turn off the power to the DM6437.
17. Turn back on the power to the DM6437.
18. To verify the binary is burned into Flash successfully, ping the DM6437 EVM board.

## 4 Install ObjectVideo OnBoard

The following sections discuss ObjectVideo installation.

### 4.1 Run the ObjectVideo Software Installers

The following are steps to install the ObjectVideo OnBoard software.

1. Insert the ObjectVideo OnBoard Demo CD into the computer that will run the ObjectVideo software.
2. Browse to the folder labeled with the appropriate version of the ObjectVideo software and open *Setup\_ThirdParty.hta*. The *ObjectVideo Software Setup – Prerequisite Software* screen will appear, listing several third party software applications.

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**Note:** If you run the *Setup\_ThirdParty.hta* file locally, make sure there are no spaces in the directory path.

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3. For each of the following software applications that appear on the screen, if an *Install* button appears, the software needs to be installed on the PC. Click the *Install* button that appears below a software application to install it.
  - Microsoft® .NET™ Framework 2.0
  - Microsoft SQL Server™ 2005 Express
  - Microsoft Windows® Installer 3.1 (if you are going to install Microsoft SQL Server 2005 Express)
  - Microsoft DirectX® 9.0c
  - Apache™ HTTP Server 2.0.54, with the HTTP server port set to the default of 8080

When installing Apache, enter your network domain as the Network domain, the computer host name, the Server name, and a chosen email address as the E-mail. If you use the Apache installer provided by ObjectVideo, the HTTP port is automatically set to 8080. If you are running an Apache server installed prior to this release, make sure the HTTP port is set to 8080. To change the Apache port setting from 80 to 8080, click *Start* → *All Programs* → *Apache HTTP Server 2.0.48* → *Configure Apache Server* → *Edit the Apache httpd.conf Configuration File*. Then, in the *httpd.conf* file, change all port number references from 80 to 8080. For this change to take effect, be sure to save the modified *http.conf* file.
4. If you had to install any software in [Step 1](#), reboot the computer.
5. Browse to the folder labeled with the appropriate version of the ObjectVideo software and open *Setup.hta*.

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**Note:** If you run the *Setup.hta* file locally, make sure there are no spaces in the directory path.

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6. Click the *Install* button appearing below *ObjectVideo Daemon Service* and follow the prompts, accepting the default settings. While installing the ObjectVideo Daemon Service, you will be asked for the *Server Address*. Since you will be installing all ObjectVideo software components on this computer, the *Server Address* should be the loopback IP (127.0.0.1).

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**Note:** As you go through the ObjectVideo installers, even if prompted, do NOT reboot the computer until [Step 4](#) of this process.

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7. Click the *Install* button appearing below the *ObjectVideo Server* and follow the prompts. Accept the default settings until you reach the *ObjectVideo Server Configuration* screen.
8. Review the *ObjectVideo Server Configuration* fields; modify them if necessary. In the default installation, it may not be required that you change any of the *ObjectVideo Server Configuration* field values, but you may wish to know what they mean. If not modifying any field values, you may wish to go directly to [Step 2](#).
  - *Database Host:* This is the host name (or IP address) of the computer that will host the ObjectVideo database. By default, this is the same computer as the computer running the ObjectVideo Server; however, you can store the ObjectVideo database on a different computer from the ObjectVideo Server. If you have an existing SQL Server database server you would like to use to create the ObjectVideo database, enter that server's host name in the Database Host field.
  - *Database Instance:* This is the name of the instance that is created for the ObjectVideo database. By default, the instance is named *OBVSERVER*.
  - *Database Folder:* This is the directory structure on the Database Host where the ObjectVideo database is created. By default, the ObjectVideo database is created in the ObjectVideo Server directory, *C:\Program Files\ObjectVideo\Server\Data*. If you are using a remote host for database storage, the directory structure you specify must have already been created on the remote host.
  - *Admin User:* This is the login ID that the administrator uses to access the ObjectVideo database. By default, the Admin User is *sa*. If you are using an existing SQL Server database, ensure that this login ID matches the login ID that has already been defined.
  - *Admin Password:* This is the password that the administrator uses to access the ObjectVideo database. By default, the password is set to *password1*. If you are using an existing SQL Server database, ensure that this password matches the password that has already been defined.
  - *Service User:* This is the login ID that ObjectVideo services use to access the ObjectVideo database. This cannot be the name specified in the *Admin User* field or *sa*. By default, the Service User is *obvservice*.
  - *Password/Confirm Password:* This is the password that ObjectVideo services use to access the ObjectVideo database. By default, this field defaults to *password1*. The password must contain at least one number and one letter. Special characters can also be included.
  - *Purge Database at This Size (MB):* This is the maximum size the ObjectVideo database can be before it is automatically purged. It is recommended that you use the default value of 3600 MB (3.6 GB). The value must be less than 4000 MB (4 GB).
  - *Try Not to Purge <number of days> Days of Recent Alerts:* Enter the number of days of alerts you want to try to save after a database purge. When the database reaches the size indicated in the *Purge Database at This Size* field, the alerts that occurred previous to the number of days entered in the *Try Not to Purge <number of days> Days of Recent Alerts* field are deleted. If the database size is still larger than the size in the *Purge Database at This Size* field, another day of alerts is deleted. The alerts are deleted in one-day increments until the database size is smaller than the size indicated in the *Purge Database at This Size* field.
9. Click the *Install* button appearing below *ObjectVideo OnBoard ISE* and follow the prompts, accepting the default settings. When prompted to select a *Forensics Data Directory*, select any local directory. You must select a directory, even if your sensors will not be generating forensics data.
10. Click the *Install* button appearing below *Rule and Alert Client Applications* and follow the prompts, accepting the default settings.
11. If the ObjectVideo OnBoard Demo CD contains a folder labeled with a hotfix number, open it and run the *Hotfix\_All.bat* file. Follow the prompts, accepting the default settings.
12. Reboot the computer.

## 4.2 Add ObjectVideo OnBoard Sensors and Assign Video Sources

After you have installed ObjectVideo OnBoard and rebooted the computer, you must add ObjectVideo OnBoard sensors.

1. Open the ObjectVideo Management Tool by selecting *Start* → *All Programs* → *ObjectVideo* → *ObjectVideo Management Tool*.
2. Select *Sensor* → *Add* from the top menu bar. The *Add Sensor* screen appears.
3. Select *OnBoard Universal* from the *Select Sensor* list, and then click *OK*. A new sensor appears on the left side of the ObjectVideo Management Tool window, under *Sensors*.
4. Select the new sensor from the *Sensors* list.
5. In the *Video Source* field, assign a DM6437 as the sensor's video source. Use the following convention:

```
onboard://<IP ADDRESS>/device?rxport=15001&txport=15000
```

<IP ADDRESS> is the IP address of the DM6437

For example:

```
onboard://192.168.16.71/device?rxport=15001&txport=15000
```

6. Click *Apply*
7. Click *Start* to start the new sensor.

Each video source requires a separate sensor. If you have multiple video sources, repeat this process until you have added enough sensors to process all video sources.

## 5 Using the ObjectVideo Software to Detect Events

Once the ObjectVideo software is installed and you have assigned a video source to at least one ObjectVideo OnBoard sensor, you can configure the software to begin detecting events. Use the ObjectVideo Rule Management Tool to define events for sensors to detect. Use the ObjectVideo Alert Console to view alerts that occur in response to events. These two applications were installed in [Step 3 of Section 4.1](#).

Detailed instructions for using the Rule Management Tool and Alert Console is available in the Help, which is provided with both applications. The Help can be accessed from the Help menu in each application.

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