



**Technical Memorandum**

SunGuide® Software System

SunGuide® Software Computer Sizing Estimates

**Version 2.0**

**August 18, 2015**

|  |  |
| --- | --- |
|  |  |

**Prepared for:**

Florida Department of Transportation

Transportation Systems Management and Operations

605 Suwannee Street, M.S. 90

Tallahassee, Florida 32399-0450

(850) 410-5600

|  |  |  |  |
| --- | --- | --- | --- |
| **DOCUMENT CONTROL PANEL** | | | |
| File Name: |  | | |
| File Location: |  | | |
| Version Number: | 2.0 | | |
| **Name** | | | **Date** |
| Created By: | | Steve Dellenback, SwRI | 02/04/2004 |
|  |  |
| Reviewed By: | | Stephen E. Novosad | 02/04/2004 |
| Stephen E. Novosad | 09/07/2004 |
| Stephen E. Novosad | 03/31/2005 |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Modified By: | | Steve Dellenback, SwRI | 09/06/2004 |
| Steve Dellenback, SwRI | 11/08/2004 |
| Steve Dellenback, SwRI | 03/31/2005 |
| Steve Dellenback, SwRI | 06/02/2005 |
| Steve Dellenback, SwRI | 11/15/2005 |
| Robert Heller, SwRI | 11/18/2005 |
| Tucker Brown, SwRI | 03/06/2015 |
| Tucker Brown, SwRI | 08/06/2015 |
| Kelli Moser, Atkins | 08/14/2015 |
| Kelli Moser, Atkins | 08/18/2015 |
|  |  |
|  |  |
|  |  |
| Completed By: | |  |  |

**List of Acronyms**

CCTV Closed Circuit Television

DMS Dynamic Message Sign

FDOT Florida Department of Transportation

ITS Intelligent Transportation Systems

SwRI Southwest Research Institute®

TCP/IP Transmission Control Protocol/Internet Protocol

TSM&O Transportation Systems Management and Operations

TSS Traffic Sensor Subsystem

TXDOT Texas Department of Transportation

**Revision History**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes** |
| 1.0.0 | February 4, 2004 | Initial Release. |
| 1.1.0 | September 6, 2004 | Updated based on laboratory testing experience |
| 1.1.1 | November 8. 2004 | Added dual monitor recommendation |
| 1.2.0 | March 31, 2005 | Added basis for recommendations section |
| 1.2.1 | June 2, 2005 | Added Incident Management to the sizing table |
| 2.0.0 | November 18, 2005 | Updated based on deployment experience |
| 3.0.0 | March 13, 2015 | Updated to new technology standards |

# Scope

## Document Identification

This document serves as the Computer Sizing Estimates as of the SunGuide® 6.1.0 release.

## Related Documents

The following documents were used to develop this document:

* FDOT Scope of Services: *BDQ69,* *Standard Written Agreement for SunGuide Software Support, Maintenance, and Development, Exhibit A: Scope of Services.* July 1, 2010.
* Notice to Proceed: Letter to SwRI for BDQ69, July 1, 2010
* SunGuide Project website: <http://www.sunguidesoftware.com>.

## Contacts

The following are contact persons for the SunGuide software project:

* Fred Heery, TSM&O Section, Traffic Engineering and Operations Office Central Office, [fred.heery@dot.state.fl.us](mailto:fred.heery@dot.state.fl.us), 850-410-5416
* Derek Vollmer, FDOT SunGuide Project Manager,

[derek.vollmer@dot.state.fl.us](mailto:derek.vollmer@dot.state.fl.us), 850-410-5615

* Clay Packard, P.E., Atkins Project Manager,

[clay.packard@dot.state.fl.us](mailto:clay.packard@dot.state.fl.us), 850-410-5623

* David Chang, P.E., Atkins Project Advisor,

[david.chang@dot.state.fl.us](mailto:david.chang@dot.state.fl.us), 850-410-5622

* Tucker Brown, SwRI Project Manager,

[tbrown@swri.com](mailto:tbrown@swri.com), 210-522-3035

* Roger Strain, SwRI Software Project Manager,

[rstrain@swri.com](mailto:rstrain@swri.com), 210-522-6295

# SunGuide Computer Sizing Estimates

The FDOT SunGuide software system is a highly modular, highly scalable software architecture. The computers necessary to run the environment vary widely based on the number of projected users and Intelligent Transportation Systems (ITS) field devices that are to be interfaced. The following information can be used in the planning process for what type of workstations and servers should be procured to support a SunGuide software deployment.

The SunGuide software consists of a large number of processes (software applications) that interact in a cooperative environment to provide the SunGuide software environment. It is quite possible to run the SunGuide software on a single laptop computer, but this configuration would not support many ITS devices. The number of computers required to support SunGuide software will vary widely based on the deployment environment (the most significant factor is the number of ITS devices).

A general configuration of the computers recommended by the SunGuide software development team is presented below (all computers must be networked and Transmission Control Protocol/Internet Protocol (TCP/IP) must be supported between all computers).

The following table contains the minimum and recommended specifications for SunGuide software Application servers:

|  |  |
| --- | --- |
| **Component** | **Requirement** |
| Processor | x64  Minimum: 1.4 GHz Dual core  Recommended: 2 GHz or faster Quad Core |
| Memory | Minimum: 2 GB RAM Recommended: 6-8 GB RAM or greater |
| Available Disk Space | Minimum: 40 GB Recommended: 60 GB or greater |
| Operating System | Windows Server 2008 or 2012, Standard or Enterprise depending on desired redundancy |

The following table contains the minimum and recommended specifications for SunGuide software Database servers:

|  |  |
| --- | --- |
| **Component** | **Requirement** |
| Processor | x64  Microsoft recommends at least 2GHz (x64) and also recommends Intel Pentium IV or AMD Athlon if using SQL Server  Oracle recommends an AMD64 processor |
| Memory | Minimum: 4 GB RAM Recommended: 6-8 GB RAM or greater |
| Available Disk Space | Minimum: 450 GB Recommended: 600 GB or greater  These should be dependent on database size and expected backups however these numbers could be increased or decreased based on those dependencies. |
| Operating System | Windows Server 2008 or 2012, Standard or Enterprise depending on desired redundancy |

The following table contains the minimum and recommended specifications for SunGuide Operator Workstations servers:

|  |  |
| --- | --- |
| **Component** | **Requirement** |
| Processor | x64  Minimum: 1.4 GHz Dual core Recommended: 2 GHz or faster Quad Core |
| Memory | Minimum: 2 GB RAM Recommended: 6-8 GB RAM or greater |
| Available Disk Space | Minimum: 1 GB Recommended: 5 GB or greater  SunGuide workstations do not store information beyond the application unless they are performing more detailed troubleshooting procedures. |
| Operating System | Recommended: Windows 7 in a dual monitor setup |
| Browser | Internet Explorer version 8-11 are currently supported. |

A diagram of a typical hardware configuration is included as Attachment 1 of this document. For typical center installations, each SunGuide software implementation would need the following:

* Workstations: one for each user console.
* Database Servers: one for the local SunGuide implementation. Clustering technology or high availability technology can be used, but the SunGuide software should be transparent to these hardware architectures.
* Application Servers: the number of these required varies based on the number of SunGuide subsystems deployed and how many ITS devices each of those subsystems is required to support.

**Attachment 1 – SunGuide Software Generic Deployment Concept**

**Note: Drawing provides conceptual framework – specific implementations will vary**

