

LABORATORY INFORMATION SYSTEMS

Part 1 of 10	Allscripts Susan Eben susan.eben@allscripts.com 5995 Windward Parkway Alpharetta, GA 30005 800-334-8534 www.allscripts.com	Aspyra LLC Gary Bennett gbennett@aspyra.com 7400 Baymeadows Way, Suite 101 Jacksonville, FL 32256 800-437-9000 ext. 671 www.aspyra.com	Cerner Jennifer Smith jennifer.smith@cerner.com 2800 Rockcreek Parkway Kansas City, MO 64117 816-221-1024 www.cerner.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	Allscripts Lab [†]	CyberLab	Cerner Millennium PathNet
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1972/September 2017	1982/August 2017	1982/August 2017
Last major release or update of featured LIS	January 2017 (version 16)	March 2016 (version 7.3.2)	January 2015 (version 2015.01)
Total No. of contracts for sites operating LIS	86	67	257 domains [†] (not tracked by contract)
No. of sales of LIS between August 2016–August 2017	3 (hospitals)	2 (independent labs)	41
Total No. of sites operating LIS/No. of those sites that are outside U.S.	196/3 (Canada, Saudi Arabia)	297/33 (Malaysia, Singapore, Jamaica, Hong Kong, Vietnam, Cambodia, Myanmar)	tracked by domain, not site (installed in U.S., Australia, Brazil, Canada, Cayman Islands, Egypt, Malaysia, Qatar, Saudi Arabia, Singapore, U.K., United Arab Emirates)
No. of LIS installations between August 2016–August 2017	1	2	30
Percentage of sites where company has no other software installed	30%	60%	15%
Percentage of high-volume** sites installed/Low-volume*** sites installed	85%/15%	38%/62%	—
Provide list of installed client sites to potential customers on request	yes (partial list of comparable sites)	yes (partial list of comparable sites)	yes (partial list of comparable sites)
Clients restricted from sharing their experience with company or LIS	no	no	no
No. of employees in entire company	8,000	26	26,000+
• No. of employees dedicated to LIS development, installation, and support	45	14	300+
Range in No. of user workstations in sites operating LIS	10–500 (average, 60)	2–148 (average, 70)	not tracked
Central hardware or service type	Hewlett-Packard, IBM, Dell	client hosted (agnostic) or cloud hosted	client hosted (IBM, HP) or Cerner hosted
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Object Pascal, C, C#, Java, Perl	C++, Visual Basic, HTML5, Cobol	Java, Visual Basic, C++, C#, Visual C
Operating system(s)	Windows, Red Hat Enterprise Linux, Oracle Linux	Microsoft Windows, Red Hat Enterprise Linux	HP-UX, AIX, VMS
Databases and tools	Oracle	Microsoft SQL	Oracle
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	none	Chinese and Vietnamese (for results reporting only)	British-English, German, Spanish, French
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed	installed/installed
• Microbiology/Public health microbiology	installed/installed	installed/installed	installed/installed
• Blood bank donor/Blood bank transfusion	not available/—	not available/not available	installed/installed
• Surgical pathology/Cytology	—	installed/installed	installed/installed
• Molecular pathology/Cytogenetics	—	installed/installed	installed/installed
• Flow cytometry	—	installed	installed
• EHR interface for admission/discharge/transfer (ADT)	installed	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	under development	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	not available/not available	installed/installed	installed/installed
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed	installed/installed
• Management and statistical reporting	installed	installed	installed
• Connection to provider offices	installed	installed	installed
• Commercial laboratory functionality	installed	installed	installed
• Compliance checking	—	installed	installed
• Billing and accounts receivable	—	not available	installed
• Materials management and inventory	—	under development	installed
• Test partition/Remote faxing or printing	installed/installed	installed/installed	installed/installed
• HIPAA-standard transaction formats	installed	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	—	installed/installed	installed/installed
• Specimen management and tracking	installed	under development	installed
• Compliance and quality assurance tools	installed	installed	installed
• Environmental health	installed	installed	installed
• Business analytics	under development	installed	installed
• Reference lab interface for orders, results return, status return	installed	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	no	yes	yes
Other lab-related IT vendors' systems to which LIS has an interface	Sunquest, Cerner, Meditech, SCC Soft Computer, Epic, NovoPath	Allscripts, Healthland, Greenway, CPSI, NextGen, Keane, GE, Epic, McKesson, Cerner, Meditech, others	EMR lab outbound interfaces with McKesson, Siemens, Epic, Allscripts, Meditech, others
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Ortho, Labotix Automation, Thermo Scientific, Olympus, Roche, Abbott, m-u-t America, Sarstedt, Yaskawa, others	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Olympus America, Roche, Abbott Diagnostics	Beckman Coulter, Siemens, Labotix Automation, Olympus America, Roche, Abbott, BD, Copan Diagnostics
LIS allows third-party updates of tables and rules	yes (from AMA, CMS, USPS, Regenstrief Institute, others)	no	no
LIS allows for image capture, display, reporting	no	yes	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	yes	yes	yes
LIS supports use of SNOMED CT	yes	yes	yes
Use third-party middleware for LIS-instrument interfaces	yes (for all instrument interfaces)	yes (use a combination of direct interfaces and third-party middleware)	no (interface directly)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	65% (all use Allscripts' PPIID software)	0	—
Source code/User group that meets on established schedule	escrow/yes (meets via webinar, conference call, and in person)	optional/yes (meets via webinar and conference call)	no/yes (meets in person and via webinar)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, dictionary settings, others	ad hoc query tools, user-defined interfaces, dictionary settings, Microsoft SQL Reporting Services	ad hoc query tools, user-defined interfaces, dictionary settings, others
Standard software maintenance fee covers periodic updates to LIS	yes (public domain table updates, hot patches, service packs, minor releases)	yes	yes
Fee for software modifications to comply with federal regulations and laws	potential charges for implementation services, interfaces, new modules provided with upgrades	optional (extra cost)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	no	available as either a local server or an ASP or cloud-based product (client's option); the latter involve a 3-year min. commitment plus install and training fees	available as either a local server or an ASP or cloud-based product (client's option)
Cost for smallest existing LIS install (includes hardware, software, install, training)	—	\$40,000 (annual maintenance fee, \$5,000)	—
Cost for largest existing LIS install (includes hardware, software, install, training)	—	\$750,000 (annual maintenance fee, \$85,000)	—
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> fits well in most organizations—extremely scalable, flexible, and customizable outstanding support and services organization substantially decreased total cost of ownership with availability of Linux platform 	<ul style="list-style-type: none"> strong multi-site capability with remote instrument interface options CyberLAB Essentials for 1 to 15 user labs at under \$20,000 up front, then pay by accession or subscription full-service laboratory solution with flexibility for small-, medium-, or large-volume laboratories 	<ul style="list-style-type: none"> driving innovations to connect laboratories, customers, and devices best-of-breed LIS with a large standalone and enterprisewide client base more than 35 years of creating and implementing LIS software innovations
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
*****using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			
	[†] formerly McKesson Lab and Horizon Lab		[†] some multi-tenant domains

LABORATORY INFORMATION SYSTEMS

Part 2 of 10	Clinical Software Solutions Emily Brester info@clin1.com P.O. Box 529 Queen Creek, AZ 85142 800-570-0474 www.clin1.net	Clinlab Allen Wilson awilson@clinlabinc.com 296 Treemont Drive Orange City, FL 32763 800-487-5227 www.clinlabinc.com	Common Cents Systems Carl Barringer carl.barringer@commoncentssystems.com P.O. Box 110514 Nashville, TN 37222 800-805-9278 www.apollolims.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	CLIN1 Laboratory†	Clinlab LIS	ApolloLIMS
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1987/August 2017	1987/June 2016	1987/August 2017
Last major release or update of featured LIS	August 2017 (version 11.6)	April 2017 (version 9.001)	May 2016 (version 8.0.0.4)
Total No. of contracts for sites operating LIS	—	22	58
No. of sales of LIS between August 2016–August 2017	4 (independent labs)	1 (independent lab)	7 (independent labs)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	60/3 (Canada, U.K., New Zealand)	22/0	60/0
No. of LIS installations between August 2016–August 2017	—	0 (working on custom development activities)	3
Percentage of sites where company has no other software installed	—	100%	100%
Percentage of high-volume** sites installed/Low-volume*** sites installed	10%/90%	35%/65%	40%/60%
Provide list of installed client sites to potential customers on request	yes (partial list of comparable sites)	yes (partial list of comparable sites)	dependent on type of lab
Clients restricted from sharing their experience with company or LIS	no	no	no
No. of employees in entire company	12	8	19
• No. of employees dedicated to LIS development, installation, and support	6	5	12
Range in No. of user workstations in sites operating LIS	3–150 (average, 10)	3–100 (average, 5)	2–60 (average, 12)
Central hardware or service type	client/server	Microsoft server	Microsoft server
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	4GL	C#, Delphi	Delphi, SQL
Operating system(s)	Windows	Microsoft	Microsoft
Databases and tools	SQL	Sybase SQL, Microsoft SQL	InterSystems Caché, Microsoft SQL
System includes full transaction logging	yes	no	yes
Languages (other than English) offered on system	—	none	none
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed	installed/installed
• Microbiology/Public health microbiology	installed/available but not installed	installed/installed	installed/installed
• Blood bank donor/Blood bank transfusion	available but not installed/available but not installed	not available/not available	not available/not available
• Surgical pathology/Cytology	installed/installed	not available/not available	not available/not available
• Molecular pathology/Cytogenetics	installed/installed	installed/installed	not available/not available
• Flow cytometry	available but not installed	installed	not available
• EHR interface for admission/discharge/transfer (ADT)	installed	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	installed	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	installed/installed	under development/under development	installed/not available
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed	installed/installed
• Management and statistical reporting	installed	installed	installed
• Connection to provider offices	installed	installed	installed
• Commercial laboratory functionality	installed	installed	installed
• Compliance checking	installed	not available	installed
• Billing and accounts receivable	installed	not available	installed
• Materials management and inventory	installed	not available	installed
• Test partition/Remote faxing or printing	installed/installed	installed/installed	installed/installed
• HIPAA-standard transaction formats	installed	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed	installed/installed
• Specimen management and tracking	installed	installed	installed
• Compliance and quality assurance tools	installed	installed	installed
• Environmental health	available but not installed	installed	installed
• Business analytics	installed	installed	installed
• Reference lab interface for orders, results return, status return	installed	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	under development	no	no
Other lab-related IT vendors' systems to which LIS has an interface	Allscripts, GE Healthcare, Greenway, Healthland, NextGen, McKesson, Siemens, others	—	Siemens, Allscripts, Meditech, Sunquest
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Labotix Automation, Thermo Scientific, Olympus America, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Thermo Scientific, Olympus America, Roche Diagnostics, Abbott Diagnostics
LIS allows third-party updates of tables and rules	no	no	no
LIS allows for image capture, display, reporting	yes	no	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	yes	yes
LIS supports use of SNOMED CT	yes	—	yes
Use third-party middleware for LIS-instrument interfaces	no (interface directly)	yes (use a combination of direct interfaces and third-party middleware)	no (interface directly)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	100% (all use Clinical Software Solutions' PPID software)	0	0
Source code/User group that meets on established schedule	no/yes (meets via webinar and conference call)	escrow/no	escrow/yes (meets via conference call)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, dictionary settings	ad hoc query tools, dictionary settings	ad hoc query tools, user-defined interfaces, dictionary settings
Standard software maintenance fee covers periodic updates to LIS	yes	yes	yes
Fee for software modifications to comply with federal regulations and laws	standard (no charge)	standard (no charge)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	available as either a local server or an ASP or cloud-based product (client's option)	no	available as either a local server or an ASP or cloud-based product (client's option); the latter involve an implementation fee and monthly usage fee
Cost for smallest existing LIS install (includes hardware, software, install, training)	\$15,000 (annual maintenance fee, \$3,000)	\$10,000 (annual maintenance fee, \$1,500)	\$64,000 (annual maintenance fee, \$11,736)
Cost for largest existing LIS install (includes hardware, software, install, training)	\$350,000 (annual maintenance fee, \$75,000)	\$100,000 (annual maintenance fee, \$15,000)	\$666,000 (annual maintenance fee, \$133,088.28)
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> company understands advanced analytical methods required for new protocols, interpretations, and unique data-management requirements company will customize interfaces and processors to fit a client's workflow staff are laboratory professionals developing tools for research and clinical laboratory professionals 	<ul style="list-style-type: none"> small basis and footprint easy user interface real-time interfaces 	<ul style="list-style-type: none"> flexible, rules-based, highly efficient database structure combined with a rules-based architecture intuitive user interface—assists with rapid training and deployment fully integrated—all lab disciplines; QC; imaging; instrument and EMR interfaces; QA; Web reporting; Web order entry
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
*****using NAAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			
	†formerly CSSWin LIS		

LABORATORY INFORMATION SYSTEMS

Part 3 of 10	Comp Pro Med Jeff Fisher sales@comppromed.com 3418 Mendocino Ave. Santa Rosa, CA 95403 800-276-4522 www.comppromed.com	CompuGroup Medical Gene Williamson gene.williamson@cgm.com 10715 Red Run Blvd., Suite 101 Owings Mills, MD 21117 410-517-0330 www.cgmus.com	Computer Service and Support M. Burdhimo mburdhimo@csslis.com 2106 New Rd., Suites E6 & 7 Linwood, NJ 08221 609-653-6444 www.csslis.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	Polytech	CGM LABDAQ†	Avalon
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1981/August 2017	1991/August 2017	1980/August 2017
Last major release or update of featured LIS	August 2017 (version 8.5.8)	July 2017 (version CGM LABDAQ 17.3)	February 2017 (version 2.5)
Total No. of contracts for sites operating LIS	162	2,935	—
No. of sales of LIS between August 2016–August 2017	10 (5 independent labs, 5 hospital and gov. labs)	142 (1 hospital, 57 independent labs, 84 other sites)	5 (independent labs)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	162/74 (Canada, Ethiopia, Philippines, Bhutan, Uganda, Nigeria)	3,505/10 (Dubai, Abu Dhabi, Longawai, Malawi, Virgin Islands, Panama)	120/3 (United Arab Emirates, Canada)
No. of LIS installations between August 2016–August 2017	10	120	5
Percentage of sites where company has no other software installed	100%	100%	30%
Percentage of high-volume** sites installed/Low-volume*** sites installed	0/100%	not tracked/not tracked	35%/65%
Provide list of installed client sites to potential customers on request	no (information is confidential)	yes (partial list of comparable sites)	yes (partial list of comparable sites)
Clients restricted from sharing their experience with company or LIS	yes	no	no
No. of employees in entire company	13	250	16
• No. of employees dedicated to LIS development, installation, and support	8	77	8
Range in No. of user workstations in sites operating LIS	2–200 (average, 20)	1–150+ (average, 5–10)	2–100+ (average, 18)
Central hardware or service type	any (client supported)	client/server (business grade)	IBM RS/6000 power servers
How central server failure is handled	system continues uninterrupted; Edge Computing Topology	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	C++	.Net	Java, PHP, C++
Operating system(s)	Windows 7, 8, 10	Windows Server 2012 F2, Windows 10 Professional	AIX, Linux
Databases and tools	Pervasive	Oracle	MySQL
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	all languages supported by Microsoft OS	none	—
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed	installed/installed
• Microbiology/Public health microbiology	installed/installed	installed/installed	installed/available but not installed
• Blood bank donor/Blood bank transfusion	in testing phase/in testing phase	not available/not available	not available/not available
• Surgical pathology/Cytology	installed/installed	installed/installed	installed/not available
• Molecular pathology/Cytogenetics	installed/installed	installed/not available	not available/not available
• Flow cytometry	installed	installed	not available
• EHR interface for admission/discharge/transfer (ADT)	installed	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	installed	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	installed/installed	not available/not available	installed/installed
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed	installed/installed
• Management and statistical reporting	installed	installed	installed
• Connection to provider offices	installed	installed	installed
• Commercial laboratory functionality	installed	installed	installed
• Compliance checking	installed	installed	—
• Billing and accounts receivable	installed	not available	installed
• Materials management and inventory	in testing phase	under development	installed
• Test partition/Remote faxing or printing	installed/installed	installed/installed	installed/installed
• HIPAA-standard transaction formats	installed	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed	installed/installed
• Specimen management and tracking	installed	installed	installed
• Compliance and quality assurance tools	installed	installed	installed
• Environmental health	in testing phase	not available	not available
• Business analytics	installed	installed	installed
• Reference lab interface for orders, results return, status return	installed	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	yes	no	no
Other lab-related IT vendors' systems to which LIS has an interface	GE Healthcare, eClinicalWorks, Siemens, Allscripts, others	Cerner, Sunquest, NovoPath, Healthland, McKesson, Meditech, Epic, Siemens, others	GE Healthcare, McKesson, SCC Soft Computer, Telcor, eClinicalWorks, MediSoft, Athena, Orchard, NextGen, Practice Fusion, Epic, Allscripts, others
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Thermo Scientific, Olympus America, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Roche Diagnostics	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Labotix Automation, Thermo Scientific, Olympus America, Roche Diagnostics, Abbott Diagnostics
LIS allows third-party updates of tables and rules	yes (from LOINC, NDC, ICD-10, others)	yes (from CodeMap)	no
LIS allows for image capture, display, reporting	yes	yes	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	yes	no	no
LIS supports use of SNOMED CT	yes	yes	yes
Use third-party middleware for LIS-instrument interfaces	no (interface directly)	no (interface directly)	no (interface directly)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	100% (90% of total use Comp Pro Med's PPID software/ 10% of total use third-party PPID software via interface)	0	98%
Source code/User group that meets on established schedule	no/no	escrow/yes (meets in person and via webinar)	escrow/no
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings	ad hoc query tools, user-configurable rules, user-defined fields for patient information, others	ad hoc query tools, user-defined interfaces, dictionary settings, access to SQL database
Standard software maintenance fee covers periodic updates to LIS	yes	yes	yes
Fee for software modifications to comply with federal regulations and laws	standard (no charge)	standard (no charge)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	no	no	available as either a local server or an ASP or cloud-based product (client's option)
Cost for smallest existing LIS install (includes hardware, software, install, training)	—	\$15,000 (annual maintenance fee, \$1,900)	\$25,000 (annual maintenance fee, \$4,000)
Cost for largest existing LIS install (includes hardware, software, install, training)	—	\$700,000 (annual maintenance fee, \$98,000)	\$200,000 (annual maintenance fee, \$40,000)
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> affordable system with no hidden costs; unmatched total cost of ownership and return on investment easy to use, intuitive LIS that can be set up in a matter of days; backed by responsive, expert support scalable, full-featured system that is expandable and flexible 	<ul style="list-style-type: none"> advanced integration and connectivity capabilities with EHRs, billing, reference labs, and analyzers powerful user-defined rules and data queries to assist with decision support and data analytics experienced, responsive support staff, sales personnel, and system integration department for complete system support 	<ul style="list-style-type: none"> ease of use and training ease of integration with other products ease of access to database for internal use
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
*****using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			
		†formerly marketed by Antek HealthWare as LabDAQ	

LABORATORY INFORMATION SYSTEMS

Part 4 of 10	Diamond Computing Jim Campbell jim@diamondcomputing.net 9315 Saint Georgen Common Johns Creek, GA 30097 770-496-0286 www.diamondcomputing.net	Epic Melissa Hunter mhunter@epic.com 1979 Milky Way Verona, WI 53593 608-777-9000 www.epic.com	Evident LLC Sales Department sales@evident.com 6600 Wall St. Mobile, AL 36695 800-711-2774 www.evident.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	LabGEM	Beaker Laboratory Information System	Thrive EHR-LIS [†]
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1984/July 2017	1980/August 2017	1986/September 2017
Last major release or update of featured LIS	July 2017 (version 7.17.001)	November 2016 (version Epic 2017)	October 2014 (version 19)
Total No. of contracts for sites operating LIS	26	108	441
No. of sales of LIS between August 2016–August 2017	4 (independent labs)	40 (hospitals)	16 (hospitals)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	26/0	375/2 (Singapore, United Kingdom)	441/0
No. of LIS installations between August 2016–August 2017	4	28	16
Percentage of sites where company has no other software installed	50%	—	0
Percentage of high-volume** sites installed/Low-volume*** sites installed	70%/30%	50%/50%	3%/97%
Provide list of installed client sites to potential customers on request	yes (complete list but prospective client must sign a nondisclosure agreement)	yes (complete list with no restrictions regarding its use)	yes (partial list of comparable sites)
Clients restricted from sharing their experience with company or LIS	—	no	no
No. of employees in entire company	6	10,000	2,010 (total for parent company, CPSI)
• No. of employees dedicated to LIS development, installation, and support	6	250	312
Range in No. of user workstations in sites operating LIS	3–600 (average, 30)	—	6–500 (average, 100)
Central hardware or service type	Intel/Dell	HP 9000, HP Integrity, Sun Sparc, IBM p5 Series	IBM x3850
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	system continues uninterrupted	manual intervention necessary to restore operation or system continues uninterrupted (user's option)
Programming language(s)	Visual Basic, MUMPS, .Net	Visual Basic, Caché, C#, ASP .Net, JavaScript	Visual C++
Operating system(s)	Windows	Unix, Windows	Linux
Databases and tools	Caché	Chronicles Extended Relational Database Management System	SQL
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	—	—	none
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed	installed/installed
• Microbiology/Public health microbiology	installed/installed	installed/installed	installed/not available
• Blood bank donor/Blood bank transfusion	not available/not available	not available/not available	installed/installed
• Surgical pathology/Cytology	installed/installed	installed/installed	installed/installed
• Molecular pathology/Cytogenetics	installed/installed	installed/installed	not available/not available
• Flow cytometry	installed	installed	not available
• EHR interface for admission/discharge/transfer (ADT)	installed	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	installed	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	installed/installed	under development/under development	installed/installed
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed	installed/installed
• Management and statistical reporting	installed	installed	installed
• Connection to provider offices	installed	installed	installed
• Commercial laboratory functionality	installed	installed	installed
• Compliance checking	installed	installed	installed
• Billing and accounts receivable	installed	installed	installed
• Materials management and inventory	not available	not available	installed
• Test partition/Remote faxing or printing	installed/installed	installed/installed	installed/installed
• HIPAA-standard transaction formats	installed	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed	installed/installed
• Specimen management and tracking	installed	installed	not available
• Compliance and quality assurance tools	installed	installed	installed
• Environmental health	installed	installed	installed
• Business analytics	installed	installed	available but not installed
• Reference lab interface for orders, results return, status return	installed	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	yes	yes	yes
Other lab-related IT vendors' systems to which LIS has an interface	Cerner, McKesson, eClinicalWorks, Orchard, Meditech, Epic, others	Mediware, Haemonetics, Cerner, SCC Soft Computer, Sunquest, Meditech	Data Innovations
Lab automation systems or workcells to which LIS can interface	none (planned for future)	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Labotix Automation, Thermo Scientific, Olympus America, Roche Diagnostics, Abbott Diagnostics
LIS allows third-party updates of tables and rules	no	no	yes (from Micromedex)
LIS allows for image capture, display, reporting	yes	yes	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	yes	no	yes
LIS supports use of SNOMED CT	yes	yes	yes
Use third-party middleware for LIS-instrument interfaces	no (interface directly)	yes (for all instrument interfaces)	yes (for all instrument interfaces)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	100% (all use Diamond's PPID software)	70% (all use Epic's PPID software)	100% (80% of total use Evident's PPID software/20% of total use third-party PPID software via interface)
Source code/User group that meets on established schedule	escrow/—	yes/yes (meets via webinar, conference call, and in person)	escrow/yes (meets in person and via webinar)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings	ad hoc query tools, user-defined interfaces, dictionary settings	ad hoc query tools, dictionary settings, table maintenance
Standard software maintenance fee covers periodic updates to LIS	yes	yes	yes
Fee for software modifications to comply with federal regulations and laws	standard (no charge)	standard (no charge)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	no	available as either a local server or an ASP or cloud-based product (client's option)	available as either a local server or an ASP or cloud-based product (client's option)
Cost for smallest existing LIS install (includes hardware, software, install, training)	\$12,000	—	\$50,000 (annual maintenance fee, \$625)
Cost for largest existing LIS install (includes hardware, software, install, training)	—	—	\$70,000 (annual maintenance fee, \$875)
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> • cost • functionality • service 	<ul style="list-style-type: none"> • seamless native data transfer from LIS to EMR without need for interfaces or translation tables • integrated PPID specimen collection with end-to-end specimen tracking from ordering to sample storage • customer-driven development philosophy; customers guide design, direction, and prioritization of development 	<ul style="list-style-type: none"> • fully integrated EHR and ONC-certified HIT • company builds libraries and data dictionaries as a standard part of installation and conversion • on-site training and support for all end users
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
*****using NAAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			

†formerly CPSI System

LABORATORY INFORMATION SYSTEMS

Part 5 of 10	HEX Laboratory Systems Susan Bollinger sbollinger@hexlab.com 1084 N. El Camino Real, Suite 308 Encinitas, CA 92024 800-729-2085 www.hexlab.com	Ilex Medical Eran Ohayon erano@orsyx.com Kodak Bldg., 7 Hatnufa St. Distribution Box 3156, Kiriat Arie Industrial Park, Petach-Tikva, Israel, 4951025 +972 3 938 5537 www.ilexmedical.com	LabSoft Sales sales@labsoftweb.com 2202 N. Westshore Blvd., Suite 115 Tampa, FL 33607 800-767-3279 ext. 1 www.labsoftweb.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	LAB/HEX	eL@b	LabNet
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1981/July 2017	1990/September 2017	1992/January 2017
Last major release or update of featured LIS	May 2017 (version lh82b)	September 2017 (version 1.9.8)	—
Total No. of contracts for sites operating LIS	158	60 licenses (not tracked by contract)	300+
No. of sales of LIS between August 2016–August 2017	2 (independent labs)	0 (working on projects for existing customers)	3 (independent labs)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	173/11 (Middle East)	56/55 (Israel, United Kingdom, Germany, Lithuania, South Africa, Botswana)	300+/0
No. of LIS installations between August 2016–August 2017	1	0 (working on projects for existing customers)	3
Percentage of sites where company has no other software installed	90%	100%	95%
Percentage of high-volume** sites installed/Low-volume*** sites installed	55%/45%	100%/0	0/100%
Provide list of installed client sites to potential customers on request	yes (partial list of comparable sites)	yes (complete list with no restrictions regarding its use)	yes (partial list of comparable sites)
Clients restricted from sharing their experience with company or LIS	no	no	no
No. of employees in entire company	13	260	8
• No. of employees dedicated to LIS development, installation, and support	13	20	5
Range in No. of user workstations in sites operating LIS	3–64 (average, 24)	2–1,500 (average, 30)	1–85 (average, 3)
Central hardware or service type	Intel RAID	—	Dell, Hewlett-Packard
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation
Programming language(s)	Thoroughbred	C#	Delphi
Operating system(s)	Linux	Windows	Windows
Databases and tools	Thoroughbred IDOL-IV	SQL server	SQL
System includes full transaction logging	yes	yes	no
Languages (other than English) offered on system	Spanish	German, French, Italian, Lithuanian, Spanish, Russian, Hebrew	none
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed	installed/—
• Microbiology/Public health microbiology	installed/installed	installed/installed	installed/installed
• Blood bank donor/Blood bank transfusion	not available/not available	installed/under development	not available/not available
• Surgical pathology/Cytology	installed/installed	installed/installed	not available/not available
• Molecular pathology/Cytogenetics	installed/installed	installed/not available	not available/not available
• Flow cytometry	installed	not available	not available
• EHR interface for admission/discharge/transfer (ADT)	installed	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	installed	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	installed/installed	installed/installed	not available/not available
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed	installed/installed
• Management and statistical reporting	installed	installed	installed
• Connection to provider offices	installed	installed	installed
• Commercial laboratory functionality	installed	installed	installed
• Compliance checking	installed	installed	not available
• Billing and accounts receivable	installed	not available	not available
• Materials management and inventory	installed	installed	not available
• Test partition/Remote faxing or printing	installed/installed	installed/installed	installed/not available
• HIPAA-standard transaction formats	installed	installed	—
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed	installed/installed
• Specimen management and tracking	installed	installed	installed
• Compliance and quality assurance tools	installed	installed	installed
• Environmental health	installed	installed	not available
• Business analytics	installed	installed	not available
• Reference lab interface for orders, results return, status return	installed	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	no
• Tumor diagnosis and case data to regional cancer registry*****	yes	no	no
Other lab-related IT vendors' systems to which LIS has an interface	Cerner, McKesson, Sunquest, Orchard, CompuGroup Medical, Siemens, others	—	GE Healthcare, Epic, Cerner, Meditech, Siemens, SCC Soft Computer, others
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics
LIS allows third-party updates of tables and rules	yes (from CodeMap, others)	yes (from Elad Health)	no
LIS allows for image capture, display, reporting	yes	yes	no
LIS provides indexed field in each test definition for LOINC code	yes	no	yes
Provide LOINC dictionary for each new installation	no	no	no
LIS supports use of SNOMED CT	yes	yes	yes
Use third-party middleware for LIS-instrument interfaces	no (interface directly)	yes (use a combination of direct interfaces and third-party middleware)	no (interface directly)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	0	—	0
Source code/User group that meets on established schedule	escrow/no	escrow/—	escrow/no
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings, flags, others	ad hoc query tools, user-defined interfaces, dictionary settings	—
Standard software maintenance fee covers periodic updates to LIS	yes	yes	yes
Fee for software modifications to comply with federal regulations and laws	standard (no charge)	standard (no charge)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	available as either a local server or an ASP or cloud-based product (client's option); the latter based on \$5,000 start-up cost plus monthly fees starting at \$500	no	no
Cost for smallest existing LIS install (includes hardware, software, install, training)	\$19,000 (annual maintenance fee, \$3,600)	\$40,000 (annual maintenance fee, \$4,000)	\$10,000 (annual maintenance fee, \$1,000)
Cost for largest existing LIS install (includes hardware, software, install, training)	\$125,000 (annual maintenance fee, \$15,000)	\$2,000,000 (annual maintenance fee, \$120,000)	\$150,000 (annual maintenance fee, \$18,000)
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> reasonable pricing for all sizes of labs; stable, reliable, flexible system for all types of labs quick installation and implementation; 24/7 live U.S.-based support; on-site hardware support toxicology, molecular, and other specialty lab tools; custom result reports; integrated billing 	<ul style="list-style-type: none"> complete solution from ordering and collection to result distribution in one system and one simple data structure extensive experience connecting to any analyzer or automation system in a short time, usually using configuration only experience with large systems; high performance; high levels of automation; strong rules engine 	<ul style="list-style-type: none"> intuitive; easy to learn and use user definable reliable
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
*****using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable			

LABORATORY INFORMATION SYSTEMS

Part 6 of 10	LabWare Mike Kelly kelly@labware.com 3 Mill Rd., Suite 102 Wilmington, DE 19806 302-658-8444 www.labware.com	LigoLab Information Systems Suren Avunjian suren@ligolab.com 500 N. Central Ave., Suite 930 Glendale, CA 91203 800-544-6522/818-230-1307 www.ligolab.com	NetLIMS Eric Ditekowsky eric@netlims.com 65 Challenger Rd. Ridgefield Park, NJ 07660 201-894-5300 www.netlims.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	LabWare	LigoLab AP/LIS 4.0†	LabOS†
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1999/September 2017	2006/August 2017	1996/July 2017
Last major release or update of featured LIS	February 2015 (version 7)	August 2017 (version 3.8)	August 2017 (version 3.4.3)
Total No. of contracts for sites operating LIS	141	38	25
No. of sales of LIS between August 2016–August 2017	13 (2 hospitals, 4 independent labs, 7 other sites)	7 (independent labs)	2 (1 hospital, 1 independent lab)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	240/185 (U.K., India, Portugal, Columbia, Singapore, China, Switzerland, South Africa, Kenya, many others)	50/0	39/30 (Israel, India)
No. of LIS installations between August 2016–August 2017	13	7	2
Percentage of sites where company has no other software installed	100%	0	100%
Percentage of high-volume** sites installed/Low-volume*** sites installed	20%/80%	80%/20%	95%/5%
Provide list of installed client sites to potential customers on request	yes (complete list but prospective client must sign a nondisclosure agreement)	yes (partial list of comparable sites)	yes (complete list but prospective client must sign a nondisclosure agreement)
Clients restricted from sharing their experience with company or LIS	no	no	no
No. of employees in entire company	658	30	140
• No. of employees dedicated to LIS development, installation, and support	70	25	115
Range in No. of user workstations in sites operating LIS	5–600	15–400 (average, 100)	16–600 (average, 120)
Central hardware or service type	database server: Sun, Unix, Linux, Windows, others; application server: Windows 2008, 2012	client hosted (agnostic) or ASP	IBM, Dell, Hewlett-Packard, others
How central server failure is handled	system continues uninterrupted	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation
Programming language(s)	Java, .Net, Smalltalk	Java	C++, JavaScript
Operating system(s)	Windows	Windows, Macintosh, Linux, iOS	Windows Server 2003 and higher
Databases and tools	Oracle, SQL server, PostgreSQL, DB2	SQL, Oracle	Microsoft SQL 2005 and higher, Oracle 10 and higher, MySQL
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	German, French, Spanish, Swedish, Chinese, Hebrew, Japanese, Portuguese, Italian, Russian, Norwegian	—	Hebrew, Arabic, Spanish, French
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed	installed/installed
• Microbiology/Public health microbiology	installed/installed	installed/installed	installed/installed
• Blood bank donor/Blood bank transfusion	not available/not available	under development/under development	installed/installed
• Surgical pathology/Cytology	installed/installed	installed/installed	installed/installed
• Molecular pathology/Cytogenetics	installed/installed	installed/installed	installed/installed
• Flow cytometry	installed	installed	installed
• EHR interface for admission/discharge/transfer (ADT)	installed	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	installed	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	available but not installed/available but not installed	installed/installed	installed/installed
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed	installed/installed
• Management and statistical reporting	installed	installed	installed
• Connection to provider offices	installed	installed	installed
• Commercial laboratory functionality	installed	installed	installed
• Compliance checking	installed	installed	installed
• Billing and accounts receivable	installed	installed	installed
• Materials management and inventory	installed	installed	available but not installed
• Test partition/Remote faxing or printing	installed/installed	installed/installed	installed/installed
• HIPAA-standard transaction formats	installed	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed	installed/installed
• Specimen management and tracking	installed	installed	installed
• Compliance and quality assurance tools	installed	installed	installed
• Environmental health	installed	not available	installed
• Business analytics	installed	installed	installed
• Reference lab interface for orders, results return, status return	installed	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	yes	yes	yes
Other lab-related IT vendors' systems to which LIS has an interface	Meditech, Cerner, SCC Soft Computer, Epic, Thermo Scientific, CliniAxy, others	Cerner, Sunquest, Schuyler House, CIS, Meditech, AP Easy, Psyche Systems, Epic, Cortex	Allscripts, GE Healthcare, SCC Soft Computer, Siemens, Sunquest, Orchard, NovoPath, Cerner, others
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott	Beckman Coulter, Siemens, Ortho, Labotix Automation, Thermo Scientific, Olympus, Roche, Abbott, m-u-t America	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics, Abbott Diagnostics, Bayer, Sysmex
LIS allows third-party updates of tables and rules	yes (from Bio-Rad, LOINC, SNOMED, others)	yes	yes (from Info X, AMA, SNOMED, CodeMap, others)
LIS allows for image capture, display, reporting	yes	yes	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	no	yes	no
LIS supports use of SNOMED CT	yes	yes	yes
Use third-party middleware for LIS-instrument interfaces	no (interface directly)	no (interface directly)	yes (use a combination of direct interfaces and third-party middleware)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	2% (all use third-party PPID software via interface)	—	70% (75% of total use NetLIMS' PPID software/25% of total use third-party PPID software via interface)
Source code/User group that meets on established schedule	optional/yes (meets in person)	escrow/yes (meets via webinar, conference call, and in person)	escrow/yes (meets via webinar)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings, rules engine, workflow configuration tools, others	ad hoc query tools, user-defined interfaces, dictionary settings	ad hoc query tools, user-defined interfaces, dictionary settings, logic engine, XSL sources
Standard software maintenance fee covers periodic updates to LIS	yes	yes	yes
Fee for software modifications to comply with federal regulations and laws	standard (no charge)	standard (no charge)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	no (ASP model available via partner offering)	available as either a local server or an ASP or cloud-based product (client's option)	available as a local server or an ASP or cloud-based product (client's option); for the latter, professional services charged hourly, usage fee based on volume per type of lab
Cost for smallest existing LIS install (includes hardware, software, install, training)	\$85,000 (annual maintenance fee, \$6,000)	—	\$125,000 (annual maintenance fee, \$25,000)
Cost for largest existing LIS install (includes hardware, software, install, training)	\$5,000,000 (annual maintenance fee, \$450,000)	—	\$6,000,000 (annual maintenance fee, \$1,200,000)
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> powerful workflow-management tools that improve customer service and streamline lab operations user-friendly configuration tools; customers empowered to quickly address new business and technology requirements standard user license includes integrated tools for molecular, cytogenetics, microbiology, biobank 	<ul style="list-style-type: none"> comprehensive and scalable software platform to “future proof” an organization; all the modules necessary to modernize anatomic or clinical pathology labs no up-front capital investment; pay per case achieve high efficiency of operations and cost savings through powerful automation 	<ul style="list-style-type: none"> all lab modules reside on a single database; single set of definitions; minimum number of “moving parts” pool of drivers for multiple purposes that interfaces with point-of-care/mobile health technologies unparalleled flexibility and adaptability to user workflow utilizing user-controlled tools and rules
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
*****using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.			
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		†formerly LigoLab AP/LIS 3.5	†formerly AutoLims

LABORATORY INFORMATION SYSTEMS

Part 7 of 10	Orchard Software Corp. Kerry Foster kfoster@orchardsoft.com 701 Congressional Blvd., Suite 360 Carmel, IN 46032 800-856-1948 www.orchardsoft.com	Orchard Software Corp. Kerry Foster kfoster@orchardsoft.com 701 Congressional Blvd., Suite 360 Carmel, IN 46032 800-856-1948 www.orchardsoft.com	Pathagility Mark McCuin mark@pathagility.com 10810 Executive Center Drive Little Rock, AR 72211 888-222-2792 www.pathagility.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	Orchard Harvest LIS	Orchard Sequoia	WorkPath
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1993/August 2017	1993/— (new product)	2008/August 2017
Last major release or update of featured LIS	September 2017 (version 11.170905)	— (new product)	September 2017 (version 10.10.0)
Total No. of contracts for sites operating LIS	1,441	0	30
No. of sales of LIS between August 2016–August 2017	53 (8 hospitals, 19 independent labs, 26 other sites)	0	5 (independent labs)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	2,024/3 (Canada)	0/0	30/0
No. of LIS installations between August 2016–August 2017	40	0	5
Percentage of sites where company has no other software installed	—	—	15%
Percentage of high-volume** sites installed/Low-volume*** sites installed	40%/60%	0/0	50%/50%
Provide list of installed client sites to potential customers on request	yes (partial list of comparable sites)	yes (will provide a partial list of comparable sites)	yes (partial list of comparable sites)
Clients restricted from sharing their experience with company or LIS	no	no	no
No. of employees in entire company	256	256	—
• No. of employees dedicated to LIS development, installation, and support	164	164	—
Range in No. of user workstations in sites operating LIS	1–500 (average, 30)	—	2–500 (average, 50)
Central hardware or service type	HP Business Class in a client/server environment	HP Business Class	Amazon Web Services
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	system continues uninterrupted
Programming language(s)	4th Dimension with portions in C, C++, HTML; some modules in Java	SQL, Java	Python, Java
Operating system(s)	Windows 7+, Windows Server 2008+	Windows	agnostic–Linux, Windows, Mac, BSD, Solaris, others
Databases and tools	4D	Microsoft SQL	agnostic–MySQL, PostgreSQL, SQLite, Oracle
System includes full transaction logging	yes	—	yes
Languages (other than English) offered on system	none	none	—
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	under development/under development	installed/installed
• Microbiology/Public health microbiology	installed/installed	under development/under development	installed/available but not installed
• Blood bank donor/Blood bank transfusion	not available/not available	not available/not available	available but not installed/available but not installed
• Surgical pathology/Cytology	installed/installed	under development/under development	installed/installed
• Molecular pathology/Cytogenetics	installed/installed	under development/under development	installed/installed
• Flow cytometry	installed	under development	installed
• EHR interface for admission/discharge/transfer (ADT)	installed	available but not installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	available but not installed/available but not installed	installed/installed
• EHR interface for packaging results into PDF format	installed	available but not installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	installed/installed	not available/not available	installed/installed
• Ad hoc reporting/Rules-based system	installed/installed	available but not installed/available but not installed	installed/installed
• Management and statistical reporting	installed	available but not installed	installed
• Connection to provider offices	installed	available but not installed	installed
• Commercial laboratory functionality	installed	available but not installed	installed
• Compliance checking	installed	available but not installed	installed
• Billing and accounts receivable	not available	not available	not available
• Materials management and inventory	installed	available but not installed	not available
• Test partition/Remote faxing or printing	installed/installed	available but not installed/available but not installed	installed/installed
• HIPAA-standard transaction formats	installed	available but not installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	available but not installed/available but not installed	installed/installed
• Specimen management and tracking	installed	available but not installed	installed
• Compliance and quality assurance tools	installed	available but not installed	installed
• Environmental health	installed	under development	available but not installed
• Business analytics	installed	available but not installed	installed
• Reference lab interface for orders, results return, status return	installed	available but not installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	yes	yes	yes
Other lab-related IT vendors' systems to which LIS has an interface	Allscripts, Haemonetics, Meditech, Healthland, Sunquest, Telcor, CPSI, Epic, GE, Greenway, others	Allscripts, Haemonetics, Meditech, Healthland, Sunquest, Telcor, CPSI, Epic, GE, Greenway, others	Thermo Scientific, Sunquest, others
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Thermo Scientific, Olympus America, Roche Diagnostics, Abbott Diagnostics, Sarstedt	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Labotix Automation, Thermo Scientific, Roche Diagnostics, Abbott Diagnostics, Sarstedt	none (planned for future)
LIS allows third-party updates of tables and rules	no	no	no
LIS allows for image capture, display, reporting	yes	yes	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes	no
Provide LOINC dictionary for each new installation	no	no	no
LIS supports use of SNOMED CT	yes	yes	yes
Use third-party middleware for LIS-instrument interfaces	no (interface directly)	no (interface directly)	yes (use a combination of direct interfaces and third-party middleware)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	25% (1% of total use Orchard's PPID software/99% of total use third-party PPID software via interface)	—	20% (all use third-party PPID software via interface)
Source code/User group that meets on established schedule	escrow/yes (meets via webinar and in person)	escrow/yes (will meet via webinar and in person)	no/yes (meets via conference call)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, dictionary settings, user-defined security, rules, workflow, and templates, others	ad hoc query tools, user-defined interfaces, dictionary settings, configurable screens, user-defined security, rules, workflow, templates, others	ad hoc query tools, case type property tools
Standard software maintenance fee covers periodic updates to LIS	yes	yes	yes
Fee for software modifications to comply with federal regulations and laws	standard (no charge)	standard (no charge)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	no	no	yes (only option); based on implementation fee and monthly or annual volume-based subscription fee
Cost for smallest existing LIS install (includes hardware, software, install, training)	\$35,000 (annual maintenance fee, \$4,000)	—	—
Cost for largest existing LIS install (includes hardware, software, install, training)	\$1,400,000 (annual maintenance fee, \$168,000)	—	—
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> expert interfacing and integration capabilities with instruments, EHR systems, host systems, departments, and reference labs robust rules-based decision support logic and data mining technology for data analytics an industry leader in product development, training, service, and support 	<ul style="list-style-type: none"> new enterprise-class LIS scalable to address the needs of large-volume laboratories uses Microsoft SQL to provide a high-volume, high-velocity solution for large data requirements robust rules-based decision support logic and data mining technology for data analytics 	<ul style="list-style-type: none"> support any testing type —software-as-a-service; fast implementations; low total cost of ownership full menu of integrated connectivity and distribution options for laboratories and other providers dynamic system for reference lab relationships
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
*****using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.			
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LABORATORY INFORMATION SYSTEMS

Part 8 of 10	Quality Software Systems Jeff Caspari jcaspari@labhealth.com 252 Old Nyack Turnpike Spring Valley, NY 10977 845-352-4313 www.labhealth.com	SCC Soft Computer Ellie Vahman ellie@softcomputer.com 5400 Tech Data Drive Clearwater, FL 33760 800-763-8352 www.softcomputer.com	Schuyler House Janet Chennault jic@schuylerhouse.com 27821 Fremont Court, Suite 8 Valencia, CA 91355 800-706-0266 www.schuylab.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	LabHealth	SoftLab	SchuyLab
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1984/2017	1985/September 2017	1994/September 2017
Last major release or update of featured LIS	2017 (version 6.4)	August 2016 (version 4.0.8)	August 2017 (version 3.3.3)
Total No. of contracts for sites operating LIS	77	332	1,046
No. of sales of LIS between August 2016–August 2017	9 (independent labs)	12 (11 hospitals, 1 independent lab)	32 (2 hospitals, 25 independent labs, 5 other sites)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	77/0	1,122/183 (Belgium, Brazil, Canada, France, Hong Kong, Jamaica, Malaysia, Singapore, Switzerland)	1,046/144 (Guam, Caribbean, Canada, Africa, Pacific Rim, South East Asia)
No. of LIS installations between August 2016–August 2017	9	6	32
Percentage of sites where company has no other software installed	30%	100%	100%
Percentage of high-volume** sites installed/Low-volume*** sites installed	70%/30%	60%/40%	30%/70%
Provide list of installed client sites to potential customers on request	no (information is confidential)	yes (partial list of comparable sites)	yes (list of sites with client permission)
Clients restricted from sharing their experience with company or LIS	no	no	no
No. of employees in entire company	14	2,000	35
• No. of employees dedicated to LIS development, installation, and support	12	1,900	20
Range in No. of user workstations in sites operating LIS	4–95	10–4,000+ (average, 80)	1–75 (average, 3)
Central hardware or service type	Dell servers	IBM System p (AIX/Unix, Linux), Intel x64	any PC (Dell recommended)
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	system continues uninterrupted	manual intervention necessary to restore operation
Programming language(s)	Visual Basic .Net	C, C++, C#, Java	C
Operating system(s)	Windows	server: IBM AIX, Linux; workstation: Microsoft Windows, Web browser-based portal	Windows XP, Vista, 7, 8, 10
Databases and tools	SQL	Oracle, Oracle WebLogic, OAS, Tomcat, ServiceMix	FairCom C-Tree, Pervasive Btrieve
System includes full transaction logging	yes	yes	no
Languages (other than English) offered on system	—	French, Portuguese	ABN forms available in Spanish
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed	installed/installed
• Microbiology/Public health microbiology	installed/installed	installed/installed	installed/not available
• Blood bank donor/Blood bank transfusion	not available/not available	installed/installed	not available in U.S./not available in U.S.
• Surgical pathology/Cytology	not available/available but not installed	installed/installed	installed/installed
• Molecular pathology/Cytogenetics	under development/under development	installed/installed	under development/under development
• Flow cytometry	under development	installed	installed
• EHR interface for admission/discharge/transfer (ADT)	installed	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	installed	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	installed/installed	not available/not available	under development/under development
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed	installed/available but not installed
• Management and statistical reporting	installed	installed	installed
• Connection to provider offices	installed	installed	installed
• Commercial laboratory functionality	installed	installed	installed
• Compliance checking	installed	installed	installed
• Billing and accounts receivable	installed	installed	installed
• Materials management and inventory	available but not installed	installed	under development
• Test partition/Remote faxing or printing	installed/installed	installed/installed	under development/installed
• HIPAA-standard transaction formats	installed	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed	installed/installed
• Specimen management and tracking	installed	installed	under development
• Compliance and quality assurance tools	installed	installed	under development
• Environmental health	under development	installed	—
• Business analytics	installed	installed	under development
• Reference lab interface for orders, results return, status return	installed	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	no	yes	no
Other lab-related IT vendors' systems to which LIS has an interface	Cerner, Allscripts, Eclipsys, others	4Medica, Allscripts, Xifin, Wyndgate, Medware, Seacoast, Cerner, CPSI, GE, Healthland, Epic, MediSolution, Meditech, others	Healthland, eClinicalWorks, Greenway, Allscripts, Emdeon, Cerner, Orchard, Siemens, others
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Thermo Scientific, Olympus America, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Labotix Automation, Thermo Scientific, Olympus America, Roche, Abbott, Tecan	Roche Diagnostics, Bayer
LIS allows third-party updates of tables and rules	no	yes (from 3M/Info X, LOINC, CAP, others)	yes (from CodeMap)
LIS allows for image capture, display, reporting	yes	yes	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	yes	yes	no
LIS supports use of SNOMED CT	yes	yes	yes
Use third-party middleware for LIS-instrument interfaces	no (interface directly)	no (interface directly)	no (interface directly)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	25% (50% of total use Quality Software Systems' PPID software/50% of total use third-party PPID software via interface)	34% (93% of total use SCC Soft Computer's PPID software/7% of total use third-party PPID software via interface)	0
Source code/User group that meets on established schedule	no/no	escrow/yes (meets in person)	escrow/yes (meets via conference call)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings	ad hoc query tools, dictionary settings, rules engine, workflow engine, business intelligence tools, others	user-defined interfaces
Standard software maintenance fee covers periodic updates to LIS	yes	yes	yes
Fee for software modifications to comply with federal regulations and laws	optional (extra cost)	standard (no charge)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	available as either a local server or an ASP or cloud-based product (client's option)	available as either a local server or an ASP or cloud-based product (client's option)	no
Cost for smallest existing LIS install (includes hardware, software, install, training)	\$20,000 (annual maintenance fee, \$6,000)	—	free (annual maintenance fee, \$120)
Cost for largest existing LIS install (includes hardware, software, install, training)	\$95,000 (annual maintenance fee, \$30,000)	—	\$265,000 (annual maintenance fee, \$32,000)
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> • true browser-based LIS with comprehensive lab and billing modules • complete toxicology and pain-management module totally integrated • customize client Web portal, LIS, billing, and sales portal for each customer 	<ul style="list-style-type: none"> • integrated single patient record and visit/encounter across CP, AP, and genetics with full specimen chain of custody • integrated content reporting across all laboratory disciplines, which automates final interpretation generation • multi-site, multi-time zone with master patient index; definable workflow protocols and rules 	<ul style="list-style-type: none"> • easy-to-use, comprehensive LIS, including electronic billing; integrates lab results with other systems • optional modules that can be added at any time • can handle the workload of any size laboratory
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
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LABORATORY INFORMATION SYSTEMS

Part 9 of 10	Seacoast Laboratory Data Systems Lisa M. Turgeon lisat@sldsi.com 195 New Hampshire Ave., Suite 140 Portsmouth, NH 03801 603-431-4114 www.sldsi.com	SimpleLIMS Kannan info@simplelims.com 600 B St., 2020 San Diego, CA 92101 619-354-1009 www.simplelims.com
See captodayonline.com/productguides for an interactive version of guide		
Name of laboratory information system	SurroundLab Plus	SimpleLIMS
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	2000/January 2017	2012/July 2017
Last major release or update of featured LIS	October 2016 (version 2016101)	July 2017 (version 2017-7)
Total No. of contracts for sites operating LIS	—	23
No. of sales of LIS between August 2016–August 2017	—	3 (independent labs)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	70/0	23/4 (India, Netherlands)
No. of LIS installations between August 2016–August 2017	2	3
Percentage of sites where company has no other software installed	4%	80%
Percentage of high-volume** sites installed/Low-volume*** sites installed	75%/25%	40%/60%
Provide list of installed client sites to potential customers on request	yes (partial list of comparable sites)	yes (complete list but prospective client must sign a nondisclosure agreement)
Clients restricted from sharing their experience with company or LIS	no	no
No. of employees in entire company	25	18
• No. of employees dedicated to LIS development, installation, and support	8	14
Range in No. of user workstations in sites operating LIS	10–250 (average, 75)	20–1,600 (average, 50)
Central hardware or service type	physical or virtual servers or cloud based	cloud, ASP
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	system continues uninterrupted
Programming language(s)	M-Caché	JavaScript, Python, PHP
Operating system(s)	Linux, Windows	browser-based client, Linux servers
Databases and tools	GT.M, KB_SQL	SQL, NoSQL
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	none	—
Features/modules incorporated in product:		
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed
• Microbiology/Public health microbiology	installed/installed	installed/—
• Blood bank donor/Blood bank transfusion	not available/not available	—
• Surgical pathology/Cytology	not available/installed	installed/installed
• Molecular pathology/Cytogenetics	not available/installed	installed/installed
• Flow cytometry	installed	installed
• EHR interface for admission/discharge/transfer (ADT)	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	installed/installed	installed/available but not installed
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed
• Management and statistical reporting	installed	installed
• Connection to provider offices	installed	installed
• Commercial laboratory functionality	installed	installed
• Compliance checking	installed	available but not installed
• Billing and accounts receivable	not available	installed
• Materials management and inventory	not available	installed
• Test partition/Remote faxing or printing	installed/installed	—/installed
• HIPAA-standard transaction formats	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed
• Specimen management and tracking	installed	installed
• Compliance and quality assurance tools	installed	installed
• Environmental health	not available	—
• Business analytics	installed	installed
• Reference lab interface for orders, results return, status return	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	no	yes
Other lab-related IT vendors' systems to which LIS has an interface	Psyche Systems, Orchard, Sunquest, Vital Axis, CPSI, Xifin, Telcor, LigoLab, Aspyra, others	Cerner, McKesson
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Olympus America, Roche Diagnostics	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics, Abbott Diagnostics
LIS allows third-party updates of tables and rules	yes (from LOINC, CPT, ICD-10)	no
LIS allows for image capture, display, reporting	yes	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	yes
LIS supports use of SNOMED CT	yes	yes
Use third-party middleware for LIS-instrument interfaces	yes (use a combination of direct interfaces and third-party middleware)	no (interface directly)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	0	100% (all use SimpleLIMS' PPID software)
Source code/User group that meets on established schedule	no/no	escrow/yes (meets via webinar)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings	—
Standard software maintenance fee covers periodic updates to LIS	yes (base code updates)	yes
Fee for software modifications to comply with federal regulations and laws	optional (extra cost)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	available as either a local server or an ASP or cloud-based product (client's option); the latter based on number of interfaces and users	yes (only option); \$10,000 per month to \$50,000 per month
Cost for smallest existing LIS install (includes hardware, software, install, training)	—	—
Cost for largest existing LIS install (includes hardware, software, install, training)	—	—
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> • commercial lab centric; scalable; fully customizable • optional modules for paperless microbiology, quality control, cytology/Pap processing, standing orders/LTC • complete product suite for commercial lab includes optional AR software, client Web portals for lab, and billing 	<ul style="list-style-type: none"> • 100% Web based—no server installation fees or set-up fees • includes services of software developers and designers; large systems include on-site dedicated LIS administrator • instrument interfaces are included; separate middleware is not necessary
*any system or model		
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
****HL7 2.5.1, LOINC, SNOMED, etc.		
*****using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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LABORATORY INFORMATION SYSTEMS

Part 10 of 10	Sunquest Information Systems Stephanie Clohessy stephanie.clohessy@sunquestinfo.com 3300 E. Sunrise Drive Tucson, AZ 85718 520-570-2000 www.sunquestinfo.com	TECHNIDATA Katherine Shay katherine.shay@technidata-web.com 2 E. Congress St., Suite 900-131 Tucson, AZ 85701 514-270-7777 www.technidata-web.com	XIFIN Conor Ward cward@xifin.com 12225 El Camino Real San Diego, CA 92130 858-436-2995 www.xifin.com
See captodayonline.com/productguides for an interactive version of guide			
Name of laboratory information system	Sunquest Laboratory	TD-NexLabs†	Xifin LIS Anywhere†
First ever*/Most recent LIS installation (based on September 2017 survey deadline)	1979/August 2017	1973/August 2017	2004/September 2017
Last major release or update of featured LIS	February 2017 (version 8.1)	November 2016 (version 01.21A)	August 2017 (version 2.25)
Total No. of contracts for sites operating LIS	—	575	40
No. of sales of LIS between August 2016–August 2017	18 (hospitals)	6 (4 hospitals, 2 independent labs)	8 (independent labs)
Total No. of sites operating LIS/No. of those sites that are outside U.S.	—/— (Canada, U.K., Ireland, Middle East)	776/765 (Canada, France, U.K., Belgium, Netherlands, Italy, Spain, Germany, Philippines, Singapore, many others)	63/2 (China, Holland)
No. of LIS installations between August 2016–August 2017	14	12	6
Percentage of sites where company has no other software installed	34%	25%	72%
Percentage of high-volume** sites installed/Low-volume*** sites installed	70%/30%	90%/10%	50%/50%
Provide list of installed client sites to potential customers on request	yes (partial list of comparable sites)	yes (partial list of comparable sites)	yes (partial list of comparable sites)
Clients restricted from sharing their experience with company or LIS	no	no	no
No. of employees in entire company	—	185	319
• No. of employees dedicated to LIS development, installation, and support	—	130	32
Range in No. of user workstations in sites operating LIS	4–500 (average, 300)	4–500+ (average, 60)	15–140 (average, 78)
Central hardware or service type	Hewlett-Packard, IBM, virtual servers	Windows, Linux, Unix	SaaS (hardware independent)
How central server failure is handled	manual intervention necessary to restore operation	manual intervention necessary to restore operation or system continues uninterrupted (user's option)	system continues uninterrupted
Programming language(s)	Caché, Caché Script, Standard C/C++, Visual Basic, Visual C++, Active X, HTML with dynamic HTML content	C++, .Net, C#, Java	C# .Net
Operating system(s)	AIX, HP-UX, OpenVMS, Linux, Windows XP	Windows, Linux, Unix	Windows
Databases and tools	InterSystems Caché	SQL server, Oracle	SQL
System includes full transaction logging	yes	yes	yes
Languages (other than English) offered on system	—	Spanish, French, Italian, Korean, Chinese, many others	Chinese
Features/modules incorporated in product:			
• Chemistry and hematology/Bar-coded collection labels	installed/installed	installed/installed	installed/installed
• Microbiology/Public health microbiology	installed/installed	installed/installed	installed/installed
• Blood bank donor/Blood bank transfusion	installed/installed	not available/not available in U.S.	not available/not available
• Surgical pathology/Cytology	installed/installed	installed/installed	installed/installed
• Molecular pathology/Cytogenetics	installed/installed	installed/installed	installed/installed
• Flow cytometry	installed	installed	installed
• EHR interface for admission/discharge/transfer (ADT)	installed	installed	installed
• EHR interface for order entry/EHR interface for results reporting	installed/installed	installed/installed	installed/installed
• EHR interface for packaging results into PDF format	installed	installed	installed
• EHR interface for packaging results into CDA1 format/CDA2 format	installed/installed	not available/not available	installed/installed
• Ad hoc reporting/Rules-based system	installed/installed	installed/installed	installed/installed
• Management and statistical reporting	installed	installed	installed
• Connection to provider offices	installed	installed	installed
• Commercial laboratory functionality	installed	installed	installed
• Compliance checking	installed	installed	installed
• Billing and accounts receivable	installed	installed	installed
• Materials management and inventory	installed	installed	installed
• Test partition/Remote faxing or printing	installed/installed	installed/installed	installed/installed
• HIPAA-standard transaction formats	installed	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed	installed/installed
• Specimen management and tracking	installed	installed	installed
• Compliance and quality assurance tools	installed	installed	installed
• Environmental health	installed	in testing phase	available but not installed
• Business analytics	installed	installed	installed
• Reference lab interface for orders, results return, status return	installed	installed	installed
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:			
• Microbiology data (culture and sensitivity)	yes	yes	yes
• Other reportable diseases (blood lead, immunology, etc.)	yes	yes	yes
• Tumor diagnosis and case data to regional cancer registry*****	yes	yes	yes
Other lab-related IT vendors' systems to which LIS has an interface	Cerner, McKesson, Siemens, Epic, GE Healthcare	SCC Soft Computer, Meditech	McKesson, Epic, Cerner, Allscripts, GE Healthcare, eClinicalWorks, others
Lab automation systems or workcells to which LIS can interface	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Labotix Automation, Olympus America, Roche Diagnostics, Abbott Diagnostics, others	Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Roche Diagnostics, Abbott Diagnostics	none (planned for future)
LIS allows third-party updates of tables and rules	yes (from 3M, CAP, AMA)	no	yes
LIS allows for image capture, display, reporting	yes	yes	yes
LIS provides indexed field in each test definition for LOINC code	yes	yes	yes
Provide LOINC dictionary for each new installation	yes	no	yes
LIS supports use of SNOMED CT	yes	no	yes
Use third-party middleware for LIS-instrument interfaces	yes (for all instrument interfaces)	no (interface directly)	yes (use a combination of direct interfaces and third-party middleware)
Percentage of LIS clients that use positive patient ID systems to identify patients and blood specimens collected at bedside	65% (65% of total use Sunquest's PPID software/35% of total use third-party PPID software via interface)	1% (50% of total use TECHNIDATA's PPID software/50% of total use third-party PPID software via interface)	5% (all use third-party PPID software via interface)
Source code/User group that meets on established schedule	escrow/yes (meets via webinar, conference call, and in person)	optional/yes (meets in person and via webinar)	escrow/yes (meets via webinar)
Methods by which users can tailor LIS in their own setting	ad hoc query tools, user-defined interfaces, dictionary settings, rules, logic, dashboards	ad hoc query tools, user-defined interfaces, dictionary settings, table settings	ad hoc query tools, user-defined interfaces, dictionary settings, mnemonics
Standard software maintenance fee covers periodic updates to LIS	yes	yes (updates related to priority 1 bugs or related fixes included)	yes
Fee for software modifications to comply with federal regulations and laws	standard (no charge)	standard (no charge)	standard (no charge)
LIS functionality available via ASP or cloud-based data center	available as either a local server or an ASP or cloud-based product (client's option)	available as either a local server or an ASP or cloud-based product (client's option); price for the latter involves start-up and installation costs, usage fee, CPU, disk space	yes (only option); \$20,000–\$150,000 installation fee (based on No. of modules) and \$350 per named user, per month subscription fee
Cost for smallest existing LIS install (includes hardware, software, install, training)	—	\$150,000 (annual maintenance fee, \$15,000)	—
Cost for largest existing LIS install (includes hardware, software, install, training)	—	\$3,500,000 (annual maintenance fee, \$700,000)	—
Distinguishing product features (supplied by company)	<ul style="list-style-type: none"> streamlines end user functions to decrease specimen-handling time and improve productivity and turnaround time multi-facility LIS with 2,000+ application interfaces and 11,000+ instrument interfaces automates and drives workflow of clinical lab from sample collection at the point of care through results 	<ul style="list-style-type: none"> business intelligence dashboard—real-time information available at user's fingertips with no need to pull reports alerts via email or SMS improve lab efficiency and allow quick response to critical results and significant infections patient results portal 	<ul style="list-style-type: none"> platform includes LIS, billing, business intelligence, and physician collaboration/consultation (digital pathology) cost-effective, Web-based SaaS solution; no major hardware or software purchases or upgrade fees clinical and anatomic pathology, next-generation sequencing, molecular testing on a single LIS platform
*any system or model			
**generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day			
***generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day			
****HL7 2.5.1, LOINC, SNOMED, etc.			
*****using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 4.0, April 2011 ed.			
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		†formerly TD-Synergy	†formerly PathCentral AP Anywhere, eTeleNext AP Anywhere